



Cyclonic Engineering Manual

Eighth Edition, July 2025

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General Cyclonic Notes

Verify all dimensions on site before making shop drawings or commencing fabrication. Stability of building during construction including temporary propping, bracing, and excavation in the vicinity of neighbouring buildings is the responsibility of the contractor. Approval of all proposals must be granted in writing prior to commencement of work. All support beams to be propped up in the centre of posts spans to create a minimum of a 10mm camber, for spans of 6 metres or greater.

All workmanship and materials are to be in accordance with current Australian Standards, local government ordinances and The Building Code of Australia.

NOTE 1: THIS ENGINEERING MANUAL COVERS PRODUCTS WITH AN APOLLO® AUSTRALIA PART NUMBER. USE OF PRODUCTS WITHOUT AN APOLLO® AUSTRALIA PART NUMBER WITHIN ANY SYSTEM APPROVED BY THIS MANUAL WILL VOID ENGINEERING APPROVALS AND ANY WARRANTIES EXPRESSED OR IMPLIED FOR THE ENTIRE STRUCTURE IN WHICH THE UNAPPROVED PRODUCT IS USED.

NOTE 2: FOR SPANS EXCEEDING 3000MM, APOLLO LIGHT PANELS MUST BE INSTALLED WITH A MINIMUM OF 2 COMPLETE SHEETS BETWEEN SUCCESSIVE APOLLO LIGHT PANELS.

NOTE 3: FOR CASE A - OPEN 3 SIDES, HEIGHT OF PATIO FROM GROUND IS TO BE NO MORE THAN 75% OF ROOF HEIGHT. IF PATIO HEIGHT EXCEEDS 75% USE FIGURES FROM CASE B - OPEN 2 SIDES.

NOTE 4: WHEREVER AN ATTACHMENT IS MADE TO AN EXISTING STRUCTURE, THE CAPACITIES OF THE TIE-DOWNS ARE TO BE CONFIRMED AS ADEQUATE, AND SUPPLEMENTED IF REQUIRED.

NOTE 5: APOLLO® ENGINEERING MANUAL ALLOWS FOR A MINIMUM OF ONE DEGREE FALL (17.45mm) PER METRE FOR ROOF SHEETING AND IS DESIGNED TO DISSIPATE RAINWATER FROM PATIO CATCHMENT AREA ONLY. NO OTHER WATER IS TO BE DIRECTED ONTO PATIO CATCHMENT AREA.

NOTE 6: THE APOLLO UNILINK 2000 ROOF CLADDING HAS BEEN TESTED AS ADEQUATE TO THE REQUIREMENTS OF NCC VOLUME TWO, CLAUSE 3.5.1.0, BY JAMES COOK UNIVERSITY, CYCLONE TESTING STATION, REPORT NO. TS689.

NOTE 7: REFER TO NON-CYCLONIC SECTION FOR ALL DESIGN INFORMATION NOT INCLUDED IN THE CYCLONIC SECTION.

Steelwork Notes

Structural steelwork to be executed in accordance with the latest editions of the following Australian Standards:

- AS 1554.1:2014 Structural Steel Welding – Welding of steel structures
- AS 1554.2:2021 Structural Steel Welding – Stud welding (steel studs to steel)
- AS 4100:2020 Steel Structures
- AS 1163:2016 Structural Steel Hollow Sections
- AS/NZS 3678:2016 Structural Steel – Hot Rolled Plates, Floor Plates and Slabs
- AS 3679.1:2016 Structural Steel – Hot Rolled Bars and Sections
- AS 3679.2:2016 Structural Steel – Welded Sections

All welding to be laid down with structural grade covered electrodes in accordance with the welding code. All welds are to be 6 CFW UNO CATEGORY G.P.

Fixings

Bolts shall be strength grade 4.6 or better in accordance with AS 1111–2015.
Fixing screws shall be to AS 3566.1-2002 Class 3, not to be used within 400mm of ocean, or marine environment.

Concrete

Concrete shall be grade N25, 10mm aggregate, 80mm slump, in accordance with AS1379:2007, and AS3600:2018.
Reinforcing shall have 50mm cover and be in accordance with AS4671:2019.

Wind Classification

Wind category is to be calculated in accordance with AS4055, or in accordance with the wind category design guide in this manual.

Note: The approach shown in this manual reflects the requirements of AS4055 and is appropriate for the type of structure under consideration.

Foundation

Footings are to be founded in natural ground consisting of dense sand or firm to stiff clay, with a minimum bearing capacity of 100kPa. Refer to engineer if site conditions vary. Footing material to be verified by geotechnical engineer as complying with these requirements prior to placing concrete.

This is to certify that the allowable span data shown complies with the following Australian Standards:

AS 1664.1:1997	Aluminium Structures – Limit state design
AS 1562.1:2018	Design and Installation of Roof Sheet and Wall Cladding - Metal
AS/NZS 4600:2018	Cold Formed Steel Structures
AS 3600:2018	Concrete Structures
AS 4100-2020	Steel Structures
AS/NZS 1170.1:2002	Structural Design actions – Permanent, imposed and other actions
AS 1170.2:2021	Structural Design actions – Wind actions
AS 4055:2021	Wind loads for housing

I am satisfied that a structure built in accordance with these details is adequate to withstand wind forces resulting from a specific selection of basic wind velocity, terrain category and appropriate pressure co-efficient.

Certification is conditional upon the following conditions:

- No pedestrian loading is permitted directly on the roof sheeting.
- The correct design criteria are selected.
- Materials used comply with the design data.
- Assembly and installation comply with the procedures set out in the Apollo ® Installation & Engineering Manuals.
- The existing structure providing support is to be assessed as adequate or supplemented as required for additional loads applied.

Engineers Notes

Where extra posts are included to support a beam mid-span to reduce post spacing, the reaction value taken from the tables shall be doubled. The individual patio systems in this manual may be combined together to form one entire system. If different systems are combined, the following will apply:

- Beams are not to be loaded other than that allowed by its individual system.
- Posts shall be included to take reactions from beams not allowed for within the patio systems.
- Any post that is common to two or more different patio systems shall have a reaction equal to the addition of the reactions from all the systems it is common to.
- All beams shall be checked for adequacy according to its particular design table.

If the patio does not conform to any of the patio systems within this manual, or to the notes above, advice should be sought from Apollo Home Improvements QLD Pty Ltd via a Design Certification Request through your state head office from Milanovic Neale Consulting Engineers. Please note that requests must follow this protocol to be considered for certification. The patio systems in this manual are not to be used in part or in conjunction with any third party product or components. Use of any components not specified in this manual within a patio will void certification of the entire patio.

Reaction Calculation:

The reactions on the posts for non-enclosed patio systems shall be calculated as follows:

- The basic pressures for the patio system are selected from the table below.
- These pressures can be multiplied by load widths to get loadings on beams in kN/m. This load can then be multiplied by the beam load-width on a post to get kN force. Alternatively, the contributing area in m² can be calculated first; then multiplied by the pressure to get a kN force.

For example, for a patio with C1 rating, three sides open, with roofing spanning 3m with 0.6m overhang, fixed to a beam with 3m double span, with 0.5m overhangs each side:

Pressure = 1.05kPa (kN/m²)

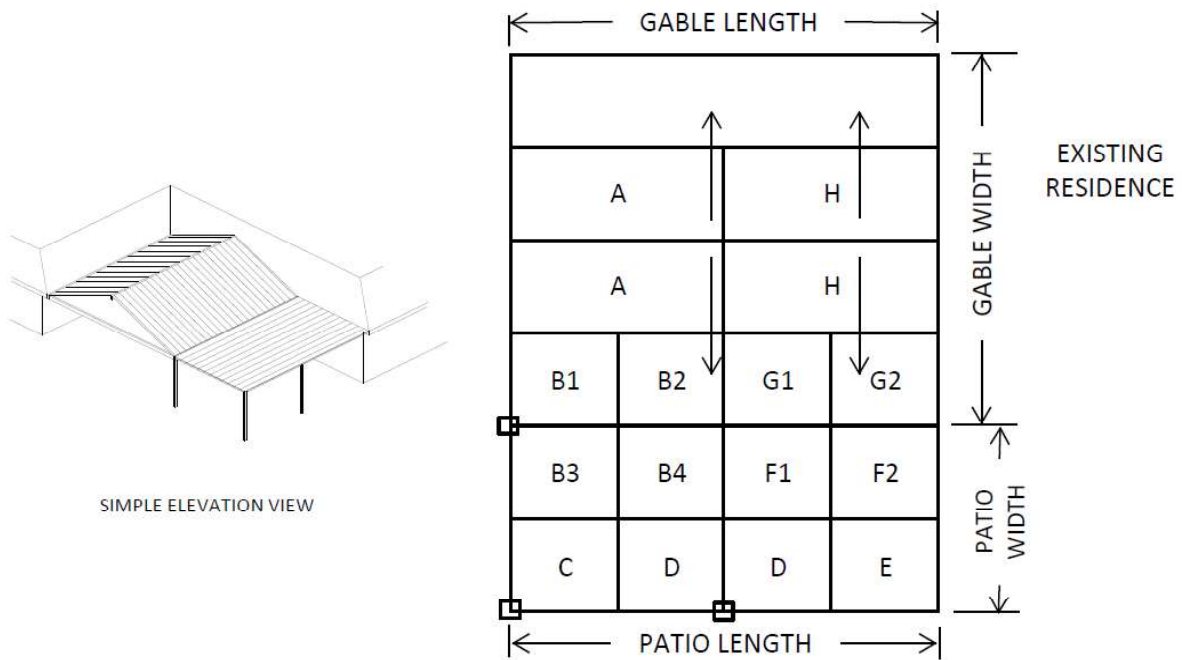
Load on beam = 1.05 x (3/2 + 0.6) = 2.21kN/m

Load on centre post = 2.21 x (3 + 3)/2 = 6.63kN

Load on outer posts – 2.21 x (3/2 + 0.5) = 4.42kN

Wind Table

Wind Rating	Vu	Open Sides		
		3	2	1
C1	50	1.05	1.50	1.80
C2	61	1.56	2.23	2.68
C3	74	2.3	3.29	3.94



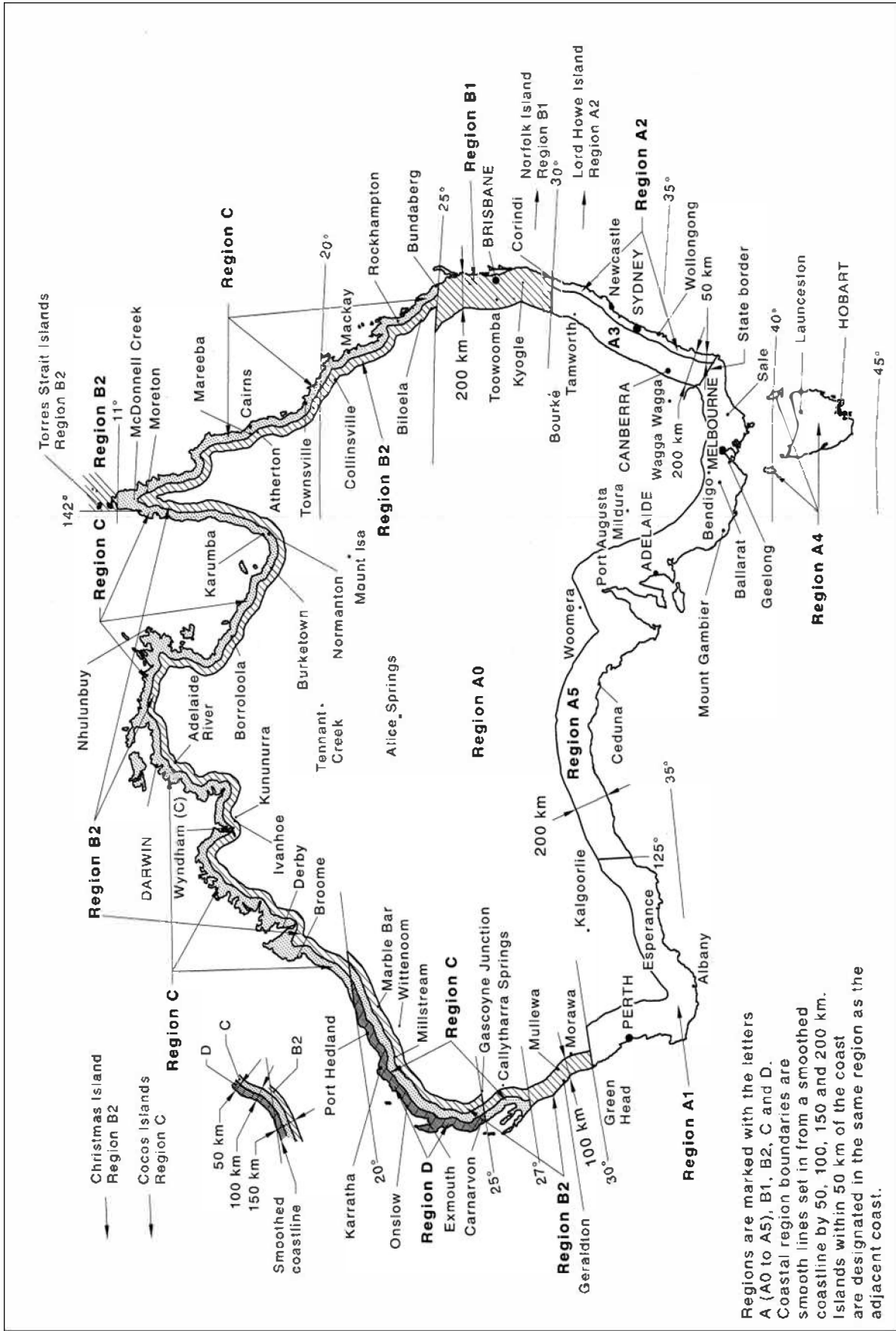
Romain Decommer
RPEQ 17323, PE 0005318

Date: 31/07/2025

THESE ENGINEERING STANDARDS COMPLY WITH THE NATIONAL CONSTRUCTION CODE OF AUSTRALIA (2022)



MILANOVIC NEALE
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CIVIL STRUCTURAL PROJECT MANAGEMENT



Regions are marked with the letters A (A0 to A5), B1, B2, C and D. Coastal region boundaries are smooth lines set in from a smoothed coastline by 50, 100, 150 and 200 km. Islands within 50 km of the coast are designated in the same region as the adjacent coast.

Wind Regions

The map defines area D which extends along the West Coast of Western Australia from the latitude 20° south to latitude 25° south and extends inland for 50 kilometres. The next 50 kilometres inland becomes region C, and the next 50 kilometres, region B2.

Region C extends northwards on the East Coast of Eastern Australia from the 25° latitude South. With the exception of the Region D portion, the northern coastline of Australia from 25° south in the east (approximately Bundaberg) to 27° south in the west is Region C.

Region C extends from the shoreline inwards 50 kilometres, and is the tropical cyclone area. The next 50 kilometres inland is region B2.

Region B1 extends from the coastline to 100km inland for the areas described below: In the west, between latitude 30 and 27. In the east, between latitude 30 and 25.

Region A is that area of Australia not affected by regions D, C, and B.

This explanation of wind regions is for general information only. It is not intended that it detract from the standards from which it was derived. If necessary, consult the below standards directly.

The codes referring to wind forces are:

- Australian Standard AS/NZS 1170.2:2021
- Australian Standard AS 4055-2021 Wind Loadings for Housing

The Design Standard for a building site can be determined from the following information charts:

A. Geographic Regions

The Geographic Regions of a site are A, B, C, and D as indicated on the map of Australia in the preceding page.

B. Terrain Category Classification

Being T.C.1, 2, 2.5, 3 as shown on the Terrain Category and Shielding Classification Chart and allowing for construction likely to happen five years hence. This is a simple and acceptable way of establishing the classification of any block of land anywhere in Australia. Refer Table 1. For TC4 refer to structural engineer for guidance.

C. Shielding Classification

The Shielding Classification of a building can only be one of these classifications:

1. Full shielding
2. Partial shielding
3. No shielding

These can be determined from the terrain category charts TC1 & TC2. It follows that when you establish the terrain category of the land you can also determine the degree of shielding of that block and house site.

D. Topographical Classification

There are six Topographical Classifications to a site: T0, T1, T2, T3, T4 and T5, and these are defined on Table 3.

The Topographical Classification zones are those referring to the position of that block of land on a hill or an escarpment.

Table 2 defines the wind classification chart for the design of buildings and structures for regions A, B, C and D.

TC1
TERRAIN CATEGORY AND SHIELDING CLASSIFICATION
EXAMPLE WHERE THERE IS OPEN WATER, SUBURBAN
HOUSING AND A LARGE PARK

Description	Ocean	Waterfront Suburbia	Residential Suburbia			Large Park > 250,000 m ²
Surface roughness	Open Water (TC1)	Houses > 10 per hectare (TC3)				Scattered trees (TC2)
Design TC for houses in this area	N/A	500m TC1	A → TC3	← TC3 500m B	TC2	N/A
Shielding for houses in this area	N/A	1st row NS 2nd row PS	FS	FS	1st row NS 2nd row PS	N/A
Design criteria for houses in this area	N/A	TC1, N5 TC1, PS	TC1, FS	TC3, FS	TC2, PS TC2, NS	N/A

TC2
TERRAIN CATEGORY AND SHIELDING CLASSIFICATION
EXAMPLE WHERE THERE IS CLOSED WATER AND SUBURBAN
AND AVERAGE HOUSING

Description	Lake	Waterfront Suburbia	Residential Suburbia	Small park < 250,000m ² , 150m across	Residential Suburbia	Average Suburbia
Surface roughness	Closed Water (TC1)		Houses > 10 per hectare (TC3)	Scattered trees in small area	Houses > 10 per hectare (TC3)	Houses < 10 per hectare (TC2.5)
Design TC for houses in this area	N/A	500m TC1	TC3 C	N/A	TC3	TC2.5 D
Shielding for houses in this area	N/A	1st row NS 2nd row PS	FS 2nd row PS 1st row NS	N/A	FS 2nd row PS 1st row NS	FS 1st row PS
Design criteria for houses in this area	N/A	TC1, NS TC1, PS	TC3, FS TC3, PS TC3, NS	N/A	TC3, FS TC3, PS TC3, NS	TC2.5, PS TC2.5, PS TC2.5, PS

Table 2
Wind Classification From Wind Region and Site Conditions

Wind Region	TC	Topographic Class																							
		T0			T1			T2			T3			T4			T5								
		FS	PS	NS	FS	PS	NS	FS	PS	NS	FS	PS	NS	FS	PS	NS	FS	PS	NS						
A	3	N1	N1	N1	N1	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2					
	2.5	N1	N1	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2				
	2	N1	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2			
	1	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2		
	3	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2		
B1	2.5	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2		
	2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	
	1	N3	N3	N3	N3	N3	N3	N3	N3	N3	N3	N3	N3	N3	N3	N3	N3	N3	N3	N3	N3	N3	N3	N3	
	3	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1	
	2.5	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1	
B2	2	C1	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	
	1	C1	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	
	3	C1 (0-50)	C2 (0-15)	C2 (0-30)	C2 (0-50)	C2 (0-5)	C2 (0-45)	C2 (0-35)	C2 (0-10)	C2 (0-25)	C2 (0-10)	C2 (0-35)	C2 (0-25)	C2 (0-10)	C2 (0-35)	C2 (0-25)	C2 (0-10)	C2 (0-35)	C2 (0-25)	C2 (0-10)	C2 (0-35)	C2 (0-25)	C2 (0-10)	C2 (0-35)	
	2.5	C1 (0-50)	C1 (15-50)	C1 (30-50)	C1 (0-50)	C1 (5-50)	C1 (45-50)	C1 (35-50)	C1 (10-50)	C1 (25-50)	C1 (10-50)	C1 (35-50)	C1 (25-50)	C1 (10-50)	C1 (35-50)	C1 (25-50)	C1 (10-50)	C1 (35-50)	C1 (25-50)	C1 (10-50)	C1 (35-50)	C1 (25-50)	C1 (10-50)	C1 (35-50)	
	2	C1 (0-50)	C2 (0-35)	C2 (0-50)	C2 (0-50)	C2 (0-30)	C2 (0-50)	C2 (30-50)	C2 (0-30)	C2 (0-50)	C2 (30-50)	C2 (0-30)	C2 (0-50)	C2 (30-50)	C2 (0-30)	C2 (0-50)	C2 (30-50)	C2 (0-30)	C2 (0-50)	C2 (30-50)	C2 (0-30)	C2 (0-50)	C2 (30-50)	C2 (0-30)	C2 (0-50)
C	2.5	C2 (0-20)	C2 (0-50)	C2 (0-50)	C2 (0-50)	C2 (0-20)	C2 (0-50)	C2 (20-50)	C2 (0-20)	C2 (0-50)	C2 (20-50)	C2 (0-20)	C2 (0-50)	C2 (20-50)	C2 (0-20)	C2 (0-50)	C2 (20-50)	C2 (0-20)	C2 (0-50)	C2 (20-50)	C2 (0-20)	C2 (0-50)	C2 (20-50)	C2 (0-20)	C2 (0-50)
	2	C2 (0-50)	C3 (0-20)	C3 (0-35)	C3 (0-50)	C3 (0-15)	C3 (0-50)	C3 (15-50)	C3 (0-15)	C3 (0-50)	C3 (15-50)	C3 (0-15)	C3 (0-50)	C3 (15-50)	C3 (0-15)	C3 (0-50)	C3 (15-50)	C3 (0-15)	C3 (0-50)	C3 (15-50)	C3 (0-15)	C3 (0-50)	C3 (15-50)	C3 (0-15)	C3 (0-50)
	1	C1	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2
	3	C1 (0-50)	C2 (0-15)	C2 (0-30)	C2 (0-50)	C2 (0-5)	C2 (0-45)	C2 (0-35)	C2 (0-10)	C2 (0-25)	C2 (0-10)	C2 (0-35)	C2 (0-25)	C2 (0-10)	C2 (0-35)	C2 (0-25)	C2 (0-10)	C2 (0-35)	C2 (0-25)	C2 (0-10)	C2 (0-35)	C2 (0-25)	C2 (0-10)	C2 (0-35)	
	2.5	C1 (0-50)	C2 (0-35)	C2 (0-50)	C2 (0-50)	C2 (0-30)	C2 (0-50)	C2 (30-50)	C2 (0-30)	C2 (0-50)	C2 (30-50)	C2 (0-30)	C2 (0-50)	C2 (30-50)	C2 (0-30)	C2 (0-50)	C2 (30-50)	C2 (0-30)	C2 (0-50)	C2 (30-50)	C2 (0-30)	C2 (0-50)	C2 (30-50)	C2 (0-30)	C2 (0-50)

LEGEND:

FS = Full shielding
PS = Partial shielding
NS = No shielding
N/A = Not applicable, that is, beyond the scope of this Standard (use AS/NZS 1170.2)

N = Non-cyclonic
C = Cyclonic
TC = Terrain category

TC1: Flat poorly grassed plains
TC1.5: Open water surface
TC2: Open terrain & grasslands
TC2.5: Rural; 2 to 10 houses per hectare
TC3: Built-up; 10 or more houses per hectare

Table 3
Topographic Classification for Hills, Ridges or Escarpments

Maximum Slope	Site Location					
	Lower-third zone (L)	Mid-third zone (M)	Top-third zone (T)			
			H < 10m	10m < H < 30m	H > 30m	
< 1:20 (< 2.9°)	T0	T0	T0	T0	T0	
≥ 1:20 (≤ 2.9°)	≤ 1:10 (≤ 5.7°)	T0	T0	T1	T1	T1
≥ 1:10 (≤ 5.7°)	≤ 1:7.5 (≤ 7.6°)	T0	T1	T1	T2	T2
≥ 1:7.5 (≥ 7.6°)	≤ 1:5 (≤ 11.3°)	T0	T1	T2	T2	T3
≥ 1:5 (≥ 11.3°)	≤ 1:3 (≤ 18.4°)	T0	T2	T2	T3	T4
≥ 1:3 (≥ 18.4°)		T0	T2	T3	T4	T5

Square Pad Footings in cohesive soils (excl. sand)			Piers in cohesive soils (excl. sand)		
Width(mm)	Depth(mm)	Capacity(kN)	Dia(mm)	Depth(mm)	Uplift Capacity(kN)
300	500	3.57	300	600	8.40
400	600	7.02	300	800	12.50
500	600	9.44	300	1000	16.60
600	600	12.26	300	1200	20.70
600	700	15.58	450	600	13.40
600	900	23.69	450	800	18.30
900	900	41.36	450	1000	26.20
			450	1200	32.70

Post Selection

Posts		Ultimate Axial	Max Height (mm)
60x50x2.01	RHS AL	13.5 kN	3000
90x75x2.01	RHS AL	30 kN	3600
50x3.0	SHS	20 kN	3600
75x3.0	SHS	40 kN	4200
89x4.0	SHS	50 kN	5000
100x4.0	SHS	60 kN	5500

Note: Footing designs are applicable only on sites with residential dwelling immediately adjacent to the Apollo structure. It is based on a minimum allowable bearing capacity of 100kPa, and not more than 200mm of topsoil. If excessive topsoil or soft or moist or poorly graded material is encountered in the hole then seek further engineering advice before proceeding. Minimum bearing capacity to be confirmed on site.

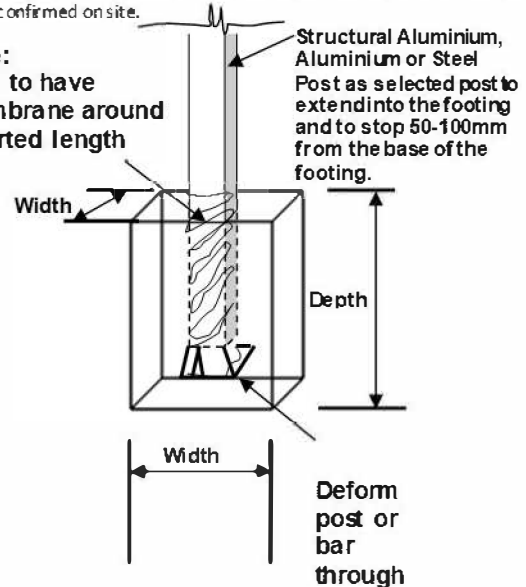
Timber Post Selection

Post		Capacity	Max Height
100 x 100	F17 HWD	36kN	3600

Structural Aluminium Post Capacities (SAL)

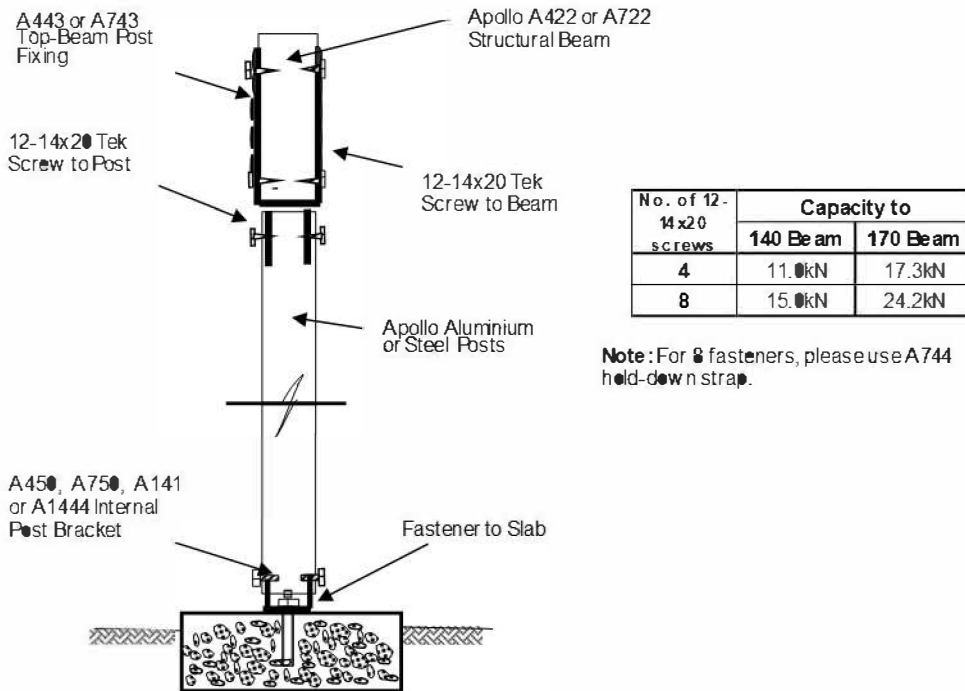
Height	Capacity
2.5m	60kN
3.0m	45kN
3.5m	35kN
4.0m	25kN
4.5m	20kN

Note:
Post to have membrane around inserted length

**Freestanding Footing and Attachment Details**

Post	Required Footings	Max Ht	Base Plate
75 SAL	450ø x 1000 deep bored piers	2400	N/A
75 x 3.0 SHS	450ø x 1300 deep bored piers	3000	12mm Base Plate, 4-M12 Chemsets Anchors (MN 100 Edge Distance, 120mm embedment)
140 x 3.0 SHSAL	450ø x 1300 deep bored piers	3000	12mm Base Plate, 4-M12 Chemsets Anchors (MN 100 Edge Distance, 120mm embedment)
90 x 3.5 SHS	450ø x 1600 deep bored piers	3600	16mm Base Plate, 4-M16 Chemset Anchors (MN 100 Edge Distance, 120mm embedment)
100 x 4.0 SHS	450ø x 1900 deep bored piers	4200	16mm Base Plate, 4-M16 Chemset Anchors (MN 100 Edge Distance, 140mm embedment)

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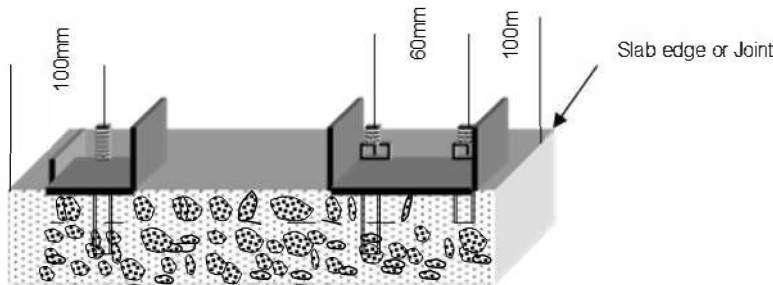
Base Fixing Detail 1

Note: Fixings for footings are to be stainless steel or hot dip galvanized. The capacity of chemical anchors depends greatly on following manufacturer's requirements regarding cleaning the drillhole, and correct use of the adhesive.

Fixings	Capacity (tension)	Notes
M12x70 Dynabolts plus	10kN	75mm Min Slab thickness
M16x110 Dynabolts plus	15kN	100mm Min Slab thickness
1/M12 Chemset 801	16kN	90mm Min Embed Depth
2/M12 Chemset 801	30kN	90mm Min Embed Depth
1/M16 Chemset 801	25kN	110mm Min Embed Depth
2/M16 Chemset 801	40kN	110mm Min Embed Depth

Fixing Clearances

Note: Capacity for dual fixings is based on a 60mm diagonal separation.





PATIO COVER
ALLOWABLE ROOF SPANS - CYCLONIC

Edition 8

Allowable Unilink Roof Roofing Span (mm)

Wind Region	Sides Open		
	3	2	1
C1	4600	4200	3900
C2	4100	3600	3200
C3	3500	2700	2300

Allowable Unilink Roof Roofing Overhangs(mm)

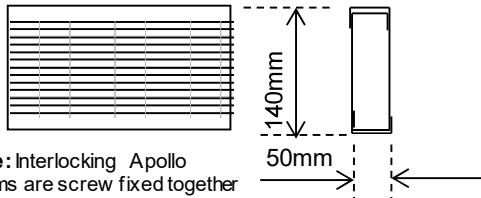
Wind Region	Sides Open		
	3	2	1
C1	900	900	900
C2	900	900	800
C3	900	700	600

Note 1: For all cyclonic regions, sheets to be fixed with cyclonic washers.

Note 2: Rear back channel foam and profile inserts to be utilized in all attached structures on both APOLLO ® roof profiles.

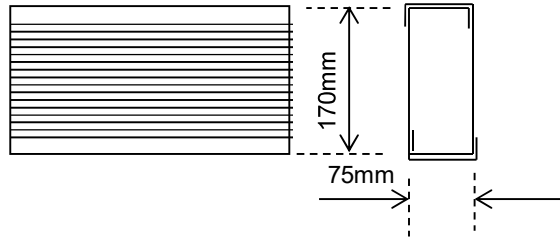
APOLLO ® BEAM SECTIONS

140x50 Interlocking C - Section Beam



Note: Interlocking Apollo beams are screw fixed together at 400mm max centres.

170x75 Interlocking C - Section Beam

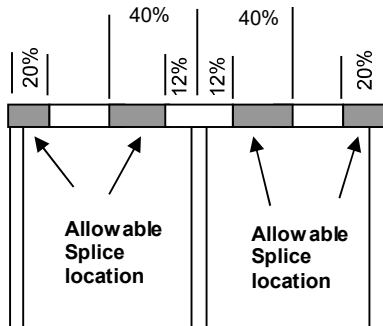
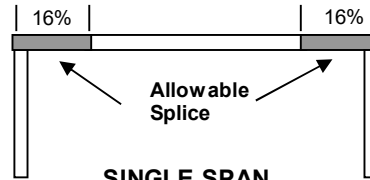


CONNECTION CAPACITIES

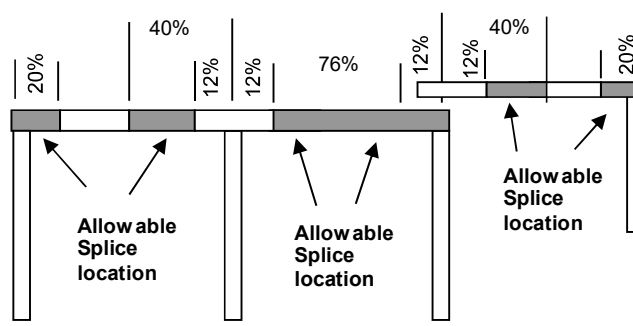
Beam Size	# Screws	Capacity
140x50 Beam	4	11.0kN
140x50 Beam	8	15.0kN
170x75 Beam	4	17.3kN
170x75 Beam	8	24.2kN

BEAM SPLICES

- For single spans splices allowable within 16% span from post.
- For multi spans, splices allowed within 20% from outside post and within 40% from internal post but not within 12% from internal post.
- Splices not allowed on external cantilevers.



DOUBLE SPAN



MULTI SPAN

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APOLLO DURASHEEN ® :

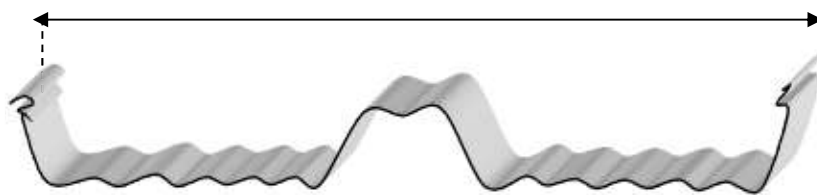
Paint Finish: 80% gloss underside, 50% gloss topside
.42 mm BMT steel G550 Zincalume coated APOLLO UNILINK 2000 ® Profile

APOLLO MAXISATIN :

Paint Finish: 25% gloss underside, 25% gloss topside
.42 mm BMT steel G550 Zincalume coated APOLLO UNILINK 2000 ® Profile
Min 4x12-14x20 Tek screws with neos to Front or Central beams
Min 4x10-12x16 Tek screws no neo or 4 x #6 Rivets underside rear back channel

**APOLLO UNILINK 2000 ®
(Unilink)**

450mm Coverage

**APOLLO LIGHT PANELS**

WIDTH - 115mm



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ALLOWABLE BEAM SPANS FOR INSULATED ROOF

APPINS-P01

Edition 8

Refer to manufacturers specifications for allowable roof spans, overhangs, and required fixing details for insulated roof panels.

Refer to ANZFC01 for post and footing details

Refer to APPINS-P02 for load calculations

140x50 Apollo Beam

Span	Allowable Load (kN/m)
2000	6.40
2400	5.33
2800	4.57
3200	4.00
3600	3.31
4000	2.63
4400	2.12
4800	1.74
5200	1.45
5600	1.22
6000	1.03

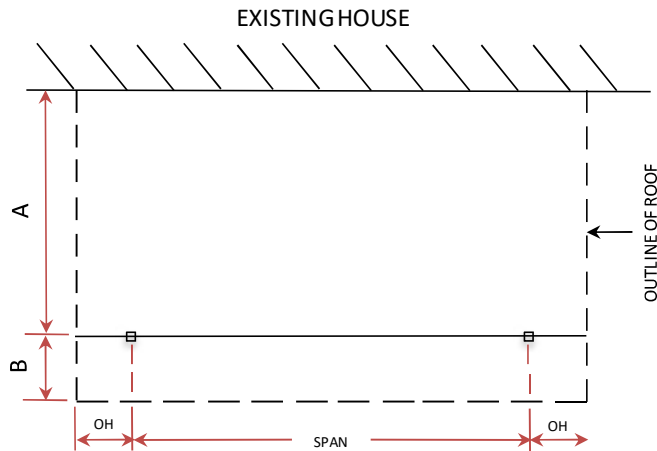
170x75 Apollo Beam

Span	Allowable Load (kN/m)
2000	17.70
2400	14.75
2800	12.64
3200	11.06
3600	9.83
4000	8.00
4400	6.46
4800	5.56
5200	4.73
5600	4.08
6000	3.56
6400	3.13
6800	2.77
7200	2.47
7600	2.17
8000	1.80

Note: It is acceptable to substitute Apollo single skin roof sheeting with insulated roof panels up to 125mm thick throughout this design manual.

Refer to manufacturers specifications for allowable spans, overhangs, and fixing details

Calculation Examples for Determining Beam Span

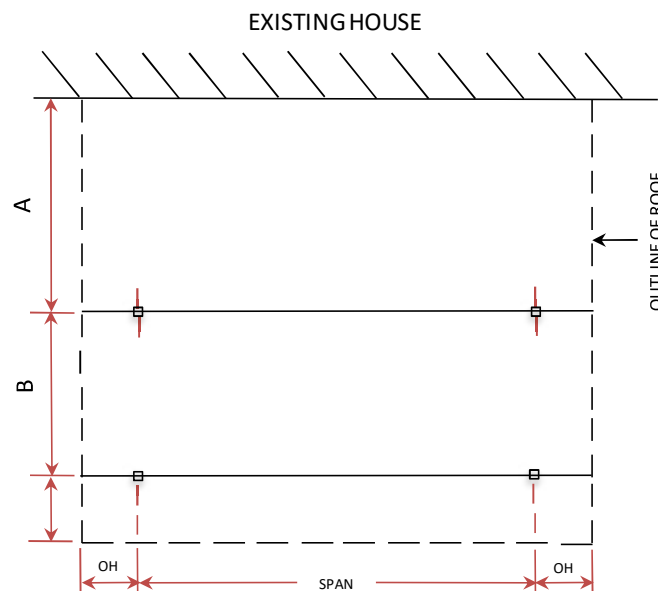


Load Width, $LW = A/2 + B$

Wind Pressure, P = From wind table

Beam Load = $P \times LW$

Notes: OH Equals $0.3 \times \text{Span Max}$



Load Width, $LW = A/2 + B/2$

Wind Pressure, P = From wind table

Beam Load = $P \times LW$

Notes: OH Equals $0.3 \times \text{Span Max}$

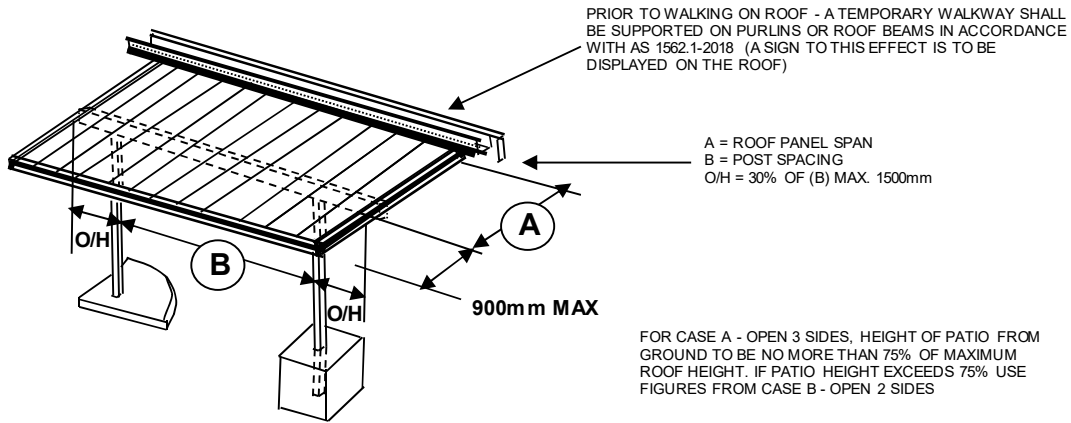
**Refer to manufacturers specifications
 for allowable spans, overhangs, and
 fixing details**

©



PATIO COVER - CYCLONIC
140 x 50 SINGLE BEAM
ANZPC23C

Edition 8



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NOTE 2 : APOLLO LIGHT PANELS MUST BE INSTALLED WITH A MINIMUM OF 2 COMPLETE SHEETS BETWEEN SUCCESSIVE APOLLO LIGHT PANELS AT SPANS GREATER THAN 3000mm.

SPAN TABLES - SIMPLE SPAN

PERMISSIBLE BEAM LENGTH FOR FRONT BEAMS

THESE CALCULATIONS REPRESENT ALL APOLLO ROOFING PROFILES

CASE A THREE SIDES OPEN

C1

A (mm) Panel Spacing	B (mm) Max. Post Spacing
2400	5050
2700	5000
3000	4950
3300	4900
3600	4850
3900	4800
4200	4750
4400	4700
4600	4650

C2

A (mm) Panel Spacing	B (mm) Max. Post Spacing
2400	4200
2700	4150
3000	4100
3300	4050
3600	4000
3900	3950
4100	3950

C3

A (mm) Panel Spacing	B (mm) Max. Post Spacing
2400	3500
2700	3450
3000	3400
3300	3400
3500	3350



PATIO COVER - CYCLONIC

140 x 50 SINGLE BEAM

ANZPC23C

Edition 8

TWO SIDES OPEN CASE B

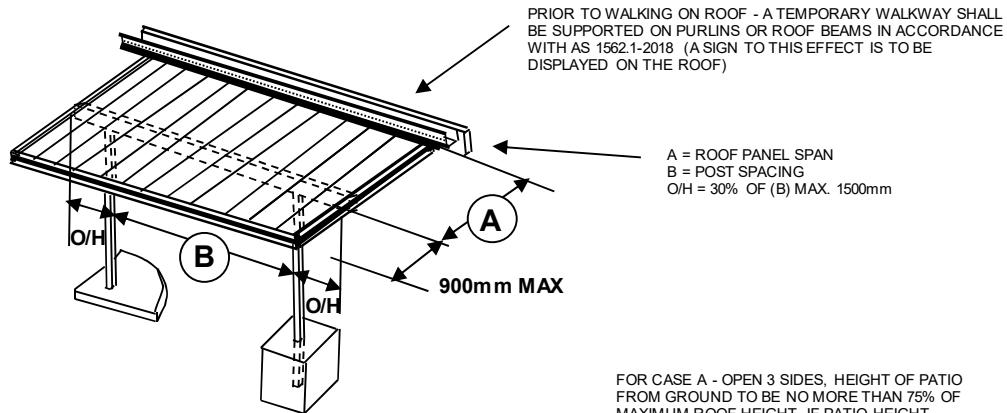
C1	
A (mm)	B (mm)
Panel	Max. Post
Spacing	Spacing
2400	3750
2700	3600
3000	3500
3300	3400
3600	3250
3900	3100
4200	2950

C2	
A (mm)	B (mm)
Panel	Max. Post
Spacing	Spacing
2400	2800
2700	2600
3000	2450
3300	2300
3600	2150

ONE SIDE OPEN CASE C

C1	
A (mm)	B (mm)
Panel	Max. Post
Spacing	Spacing
2400	3400
2700	3250
3000	3050
3300	2850
3600	2700
3900	2550

C2	
A (mm)	B (mm)
Panel	Max. Post
Spacing	Spacing
1800	2700
2100	2500
2400	2300
2700	2150
3000	2000
3200	1900



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FOR CASE A - OPEN 3 SIDES, HEIGHT OF PATIO FROM GROUND TO BE NO MORE THAN 75% OF MAXIMUM ROOF HEIGHT. IF PATIO HEIGHT EXCEEDS 75% USE FIGURES FROM CASE B - OPEN 2 SIDES

SPAN TABLES - SIMPLE SPAN

PERMISSIBLE BEAM LENGTH FOR FRONT BEAMS

THESE CALCULATIONS REPRESENT ALL APOLLO ROOFING PROFILES

THREE SIDES OPEN CASE A

C1	
A (mm)	B (mm)
Panel Spacing	Max. Post Spacing
2400	8300
2700	8300
3000	8250
3300	8200
3600	8150
3900	8100
4200	8000
4400	8000
4600	7950

C2	
A (mm)	B (mm)
Panel Spacing	Max. Post Spacing
1800	7450
2100	7400
2400	7400
2700	7300
3000	7250
3300	7150
3600	7050
3900	6950
4100	6900

C3	
A (mm)	B (mm)
Panel Spacing	Max. Post Spacing
1800	6100
2100	6050
2400	6050
2700	5950
3000	5900
3300	5850
3500	5800



PATIO COVER - CYCLONIC
170 X 75 SINGLE BEAM
ANZPC28C

Edition 8

TWO SIDES OPEN
CASE B

C1	
A (mm)	B (mm)
Panel	Max. Post
Spacing	Spacing
1800	7000
2100	6700
2400	6500
2700	6250
3000	6050
3300	5850
3600	5700
3900	5550
4200	5400

C2	
A (mm)	B (mm)
Panel	Max. Post
Spacing	Spacing
1800	5700
2100	5450
2400	5250
2700	5100
3000	4950
3300	4800
3600	4650

C3	
A (mm)	B (mm)
Panel	Max. Post
Spacing	Spacing
1800	4650
2100	4500
2400	4300
2700	4200

ONE SIDE OPEN
CASE C

C1	
A (mm)	B (mm)
Panel	Max. Post
Spacing	Spacing
1800	6350
2100	6100
2400	5900
2700	5700
3000	5500
3300	5350
3600	5200
3900	5050

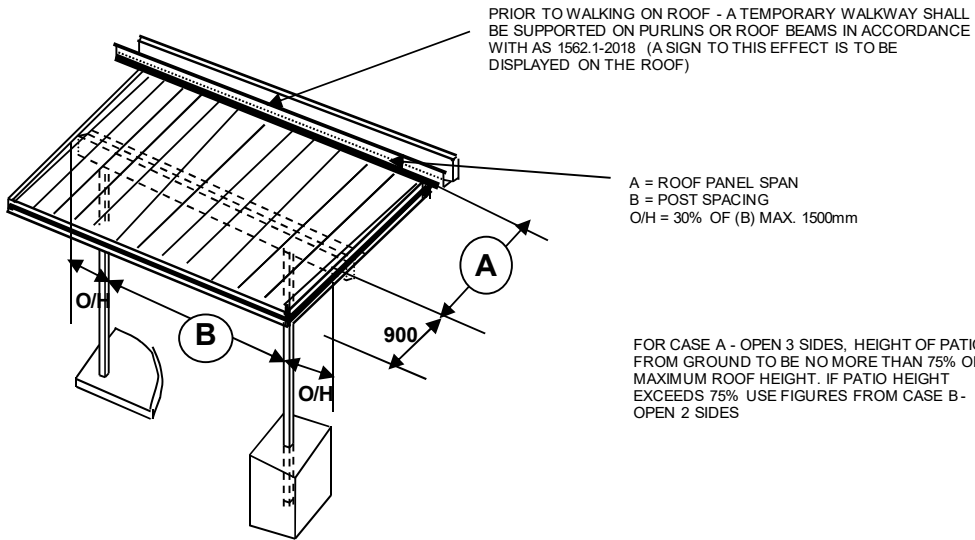
C2	
A (mm)	B (mm)
Panel	Max. Post
Spacing	Spacing
1800	5200
2100	5000
2400	4800
2700	4650
3000	4500
3200	4400

C3	
A (mm)	B (mm)
Panel	Max. Post
Spacing	Spacing
1800	4250
2100	4100
2300	4000



**PATIO COVER - CYCLONIC
DOUBLE 170 X 75 BEAM SPANS
ANZPC29C**

Edition 8



A = ROOF PANEL SPAN
B = POST SPACING
O/H = 30% OF (B) MAX. 1500mm

FOR CASE A - OPEN 3 SIDES, HEIGHT OF PATIO FROM GROUND TO BE NO MORE THAN 75% OF MAXIMUM ROOF HEIGHT. IF PATIO HEIGHT EXCEEDS 75% USE FIGURES FROM CASE B - OPEN 2 SIDES

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NOTE 2 : APOLLO LIGHT PANELS MUST BE INSTALLED WITH A MINIMUM OF 2 COMPLETE SHEETS BETWEEN SUCCESSIVE APOLLO LIGHT PANELS AT SPANS GREATER THAN 3000mm

SPAN TABLES - SIMPLE SPAN

PERMISSIBLE BEAM LENGTH FOR FRONT BEAMS

THESE CALCULATIONS REPRESENT ALL APOLLO ROOFING PROFILES

**THREE SIDES OPEN
CASE A**

C1	
A (mm) Panel Spacing	B (mm) Max. Post Spacing
2400	9750
2700	9750
3000	9700
3300	9650
3600	9600
3900	9550
4200	9500
4400	9450
4600	9400

C2	
A (mm) Panel Spacing	B (mm) Max. Post Spacing
1800	8900
2100	8900
2400	8850
2700	8850
3000	8800
3300	8750
3600	8700
3900	8650
4100	8600

C3	
A (mm) Panel Spacing	B (mm) Max. Post Spacing
1800	8050
2100	8050
2400	8050
2700	8000
3000	7950
3300	7900
3500	7850





PATIO COVER - CYCLONIC
DOUBLE 170 X 75 BEAM SPANS
ANZPC29C

Edition 8

TWO SIDES OPEN
CASE B

C1	
A (mm)	B (mm)
Panel	Max. Post
Spacing	Spacing
1800	8650
2100	8500
2400	8350
2700	8200
3000	8050
3300	7950
3600	7800
3900	7700
4200	7600

C2	
A (mm)	B (mm)
Panel	Max. Post
Spacing	Spacing
1800	7800
2100	7650
2400	7450
2700	7200
3000	7000
3300	6750
3600	6600

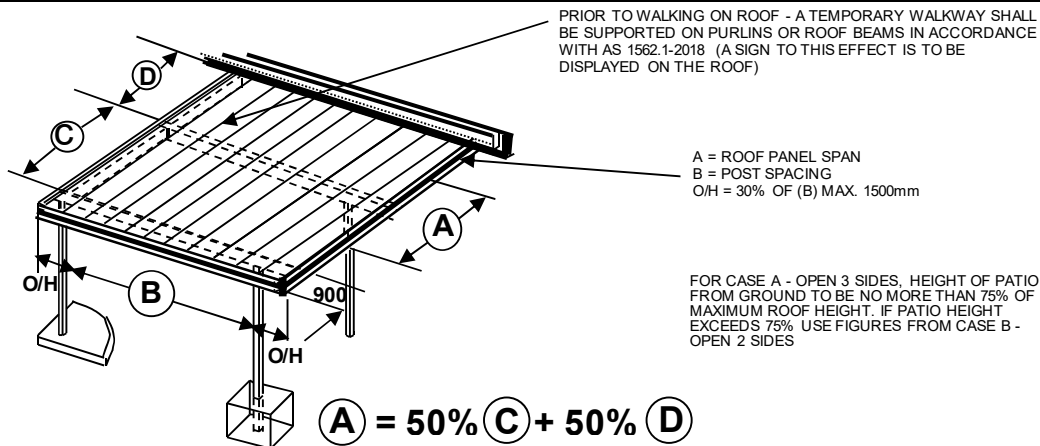
C3	
A (mm)	B (mm)
Panel	Max. Post
Spacing	Spacing
1800	6600
2100	6350
2400	6150
2700	5900

ONE SIDE OPEN
CASE C

C1	
A (mm)	B (mm)
Panel	Max. Post
Spacing	Spacing
1800	8250
2100	8100
2400	7950
2700	7800
3000	7650
3300	7550
3600	7350
3900	7150

C2	
A (mm)	B (mm)
Panel	Max. Post
Spacing	Spacing
1800	7350
2100	7050
2400	6800
2700	6550
3000	6350
3200	6250

C3	
A (mm)	B (mm)
Panel	Max. Post
Spacing	Spacing
1800	6050
2100	5800
2300	5650



IF EDGE BEAMS ARE REQUIRED PLEASE SELECT FROM ANZPLB35

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NOTE 2 : APOLLO LIGHT PANELS MUST BE INSTALLED WITH A MINIMUM OF 2 COMPLETE SHEETS BETWEEN SUCCESSIVE APOLLO LIGHT PANELS AT SPANS GREATER THAN 3000mm.

SPAN TABLES - SIMPLESPAN

PERMISSIBLE BEAM LENGTH FOR INTERNAL BEAMS, REFER TO APPLICABLE CHARTS FOR FRONT BEAMS OR EDGE BEAMS

THESE CALCULATIONS REPRESENT ALL APOLLO ROOFING PROFILES

THREE SIDES OPEN CASE A

C1	
A (mm)	B (mm)
Panel	Max. Post
Spacing	Spacing
2400	5100
2700	4950
3000	4800
3300	4650
3600	4550
3900	4400
4200	4300
4400	4250
4600	4150

C2	
A (mm)	B (mm)
Panel	Max. Post
Spacing	Spacing
2400	4250
2700	4100
3000	3950
3300	3850
3600	3750
3900	3650
4100	3550

C3	
A (mm)	B (mm)
Panel	Max. Post
Spacing	Spacing
2400	3550
2700	3400
3000	3200
3300	3000
3500	2850



PATIO COVER - CYCLONIC
140 X 50 CENTRAL BEAM SPANS
ANZPC26C

Edition 8

TWO SIDES OPEN
CASE B

C1	
A (mm)	B (mm)
Panel	Max. Post
Spacing	Spacing
2400	3500
2700	3250
3000	2950
3300	2650
3600	2450
3900	2250
4200	2100

C2	
A (mm)	B (mm)
Panel	Max. Post
Spacing	Spacing
2400	2450
2700	2150
3000	1950
3300	1750
3600	1600

ONE SIDE OPEN
CASE C

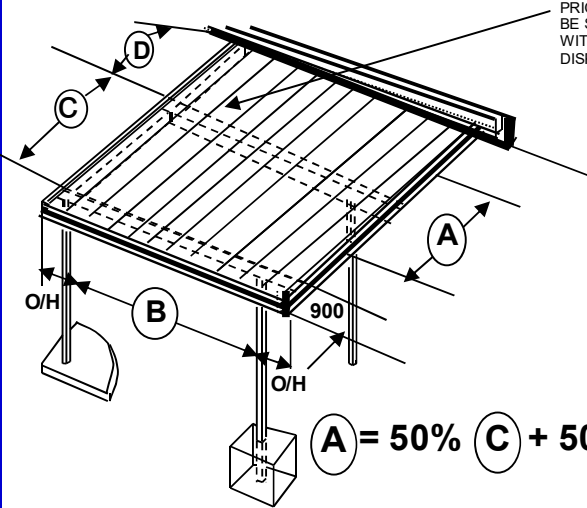
C1	
A (mm)	B (mm)
Panel	Max. Post
Spacing	Spacing
2400	3050
2700	2700
3000	2400
3300	2200
3600	2000
3900	1850

C2	
A (mm)	B (mm)
Panel	Max. Post
Spacing	Spacing
1800	2700
2100	2300
2400	2000
2700	1800
3000	1600
3200	1450



PATIO COVER - CYCLONIC
170 X 75 CENTRAL BEAM SPANS
ANZPC22C

Edition 8



PRIOR TO WALKING ON ROOF - A TEMPORARY WALKWAY SHALL BE SUPPORTED ON PURLINS OR ROOF BEAMS IN ACCORDANCE WITH AS 1562.1-2018 (A SIGN TO THIS EFFECT IS TO BE DISPLAYED ON THE ROOF)

A = ROOF PANEL SPAN
 B = POST SPACING
 O/H = 30% OF (B) MAX. 1500mm

FOR CASE A - OPEN 3 SIDES, HEIGHT OF PATIO FROM GROUND TO BE NO MORE THAN 75% OF MAXIMUM ROOF HEIGHT. IF PATIO HEIGHT EXCEEDS 75% USE FIGURES FROM CASE B - OPEN 2 SIDES

$$A = 50\% (C) + 50\% (D)$$

IF EDGE BEAMS ARE REQUIRED PLEASE SELECT FROM ANZPLB36C or ANZPLB37C

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NOTE 2 : APOLLO LIGHT PANELS MUST BE INSTALLED WITH A MINIMUM OF 2 COMPLETE SHEETS BETWEEN SUCCESSIVE APOLLO LIGHT PANELS AT SPANS GREATER THAN 3000mm.

SPAN TABLES - SIMPLE SPAN, PERMISSIBLE BEAM LENGTH FOR INTERNAL BEAMS, REFER TO APPLICABLE CHARTS FOR FRONT BEAMS OR EDGE BEAMS

THESE CALCULATIONS REPRESENT ALL APOLLO ROOFING PROFILES

THREE SIDES OPEN
CASE A

C1	
A (mm)	B (mm)
Panel Spacing	Max. Post Spacing
2400	8400
2700	8200
3000	8050
3300	7950
3600	7800
3900	7650
4200	7550
4400	7450
4600	7350

C2	
A (mm)	B (mm)
Panel Spacing	Max. Post Spacing
1800	7850
2100	7650
2400	7500
2700	7200
3000	6950
3300	6700
3600	6500
3900	6300
4100	6200

C3	
A (mm)	B (mm)
Panel Spacing	Max. Post Spacing
1800	6700
2100	6400
2400	6100
2700	5850
3000	5650
3300	5450
3500	5350





PATIO COVER - CYCLONIC
 170 X 75 CENTRAL BEAM SPANS
 ANZPC22C

Edition 8

**TWO SIDES OPEN
 CASE B**

C1	
A (mm)	B (mm)
Panel	Max. Post
Spacing	Spacing
1800	7000
2100	6500
2400	6050
2700	5700
3000	5400
3300	5150
3600	4950
3900	4750
4200	4550

C2	
A (mm)	B (mm)
Panel	Max. Post
Spacing	Spacing
1800	5700
2100	5250
2400	4950
2700	4650
3000	4400
3300	4200
3600	4000

C3	
A (mm)	B (mm)
Panel	Max. Post
Spacing	Spacing
1800	4650
2100	4300
2400	4050
2700	3800

**ONE SIDE OPEN
 CASE C**

C1	
A (mm)	B (mm)
Panel	Max. Post
Spacing	Spacing
1800	6350
2100	5900
2400	5500
2700	5200
3000	4900
3300	4700
3600	4500
3900	4300

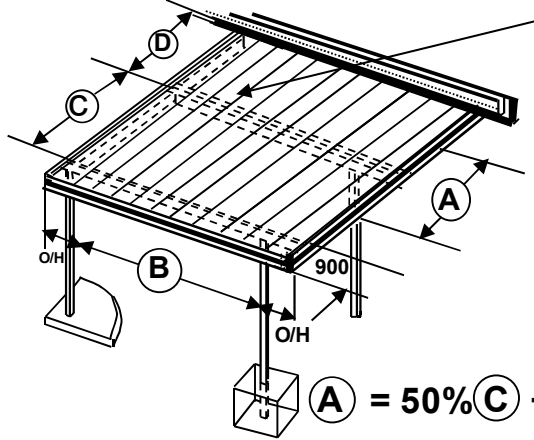
C2	
A (mm)	B (mm)
Panel	Max. Post
Spacing	Spacing
1800	5200
2100	4800
2400	4500
2700	4250
3000	4000
3200	3900

C3	
A (mm)	B (mm)
Panel	Max. Post
Spacing	Spacing
1800	4250
2100	3950
2300	3750



PATIO COVER
DOUBLE CENTRAL 170 X 75 BEAM SPANS
ANZPC27C

Edition 8



PRIOR TO WALKING ON ROOF - A TEMPORARY WALKWAY SHALL BE SUPPORTED ON PURLINS OR ROOF BEAMS IN ACCORDANCE WITH AS 1562.1-2018 (A SIGN TO THIS EFFECT IS TO BE DISPLAYED ON THE ROOF)

A = ROOF PANEL SPAN
 B = POST SPACING
 O/H = 30% OF (B) MAX. 1500mm

FOR CASE A - OPEN 3 SIDES, HEIGHT OF PATIO FROM GROUND TO BE NO MORE THAN 75% OF MAXIMUM ROOF HEIGHT. IF PATIO HEIGHT EXCEEDS 75% USE FIGURES FROM CASE B - OPEN 2 SIDES

IF EDGE BEAMS ARE REQUIRED PLEASE SELECT FROM ANZPLB35, 36, 37.

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SPAN TABLES - SIMPLESPAN

PERMISSIBLE BEAM LENGTH FOR INTERNAL BEAMS, REFER TO APPLICABLE CHARTS FOR EDGE BEAMS OR FRONT BEAMS

THESE CALCULATIONS REPRESENT ALL APOLLO ROOFING PROFILES

THREE SIDES OPEN
CASE A

C1	
A (mm)	B (mm)
Panel	Max. Post
Spacing	Spacing
2400	9700
2700	9600
3000	9450
3300	9350
3600	9200
3900	9100
4200	9000
4400	8900
4600	8850

C2	
A (mm)	B (mm)
Panel	Max. Post
Spacing	Spacing
1800	9250
2100	9100
2400	8900
2700	8750
3000	8600
3300	8500
3600	8350
3900	8200
4100	8150

C3	
A (mm)	B (mm)
Panel	Max. Post
Spacing	Spacing
1800	8450
2100	8250
2400	8100
2700	7950
3000	7750
3300	7600
3500	7550





PATIO COVER

DOUBLE CENTRAL 170 X 75 BEAM SPANS

ANZPC27C

Edition 8

TWO SIDES OPEN CASE B

C1	
A (mm)	B (mm)
Panel	Max. Post
Spacing	Spacing
1800	8650
2100	8350
2400	8050
2700	7800
3000	7600
3300	7300
3600	7000
3900	6700
4200	6450

C2	
A (mm)	B (mm)
Panel	Max. Post
Spacing	Spacing
1800	7800
2100	7450
2400	7000
2700	6600
3000	6250
3300	5950
3600	5700

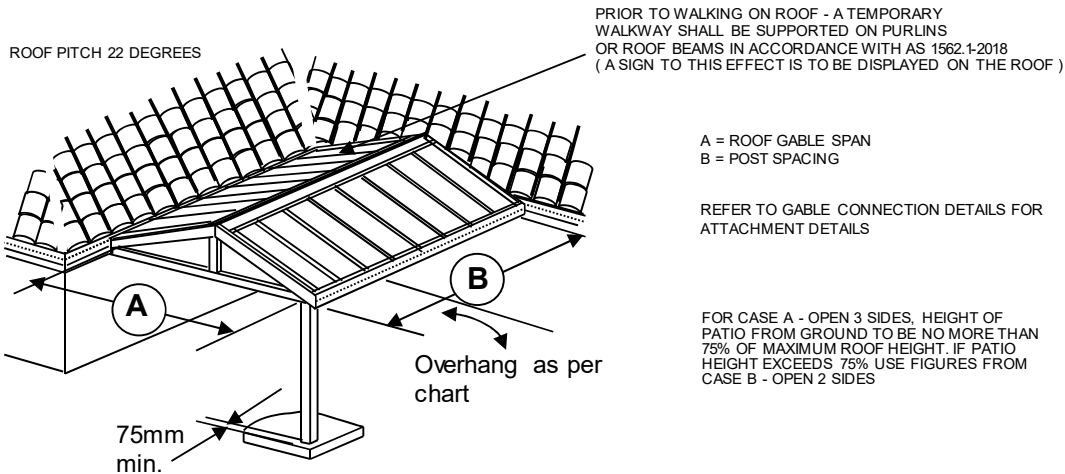
C3	
A (mm)	B (mm)
Panel	Max. Post
Spacing	Spacing
1800	6600
2100	6150
2400	5750
2700	5400

ONE SIDE OPEN CASE C

C1	
A (mm)	B (mm)
Panel	Max. Post
Spacing	Spacing
1800	8250
2100	7950
2400	7650
2700	7350
3000	6950
3300	6650
3600	6350
3900	6100

C2	
A (mm)	B (mm)
Panel	Max. Post
Spacing	Spacing
1800	7350
2100	6800
2400	6350
2700	6000
3000	5700
3200	5500

C3	
A (mm)	B (mm)
Panel	Max. Post
Spacing	Spacing
1800	6050
2100	5600
2300	5350



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NOTE 2 : APOLLO LIGHT PANELS MUST BE INSTALLED WITH A MINIMUM OF 2 COMPLETE SHEETS BETWEEN SUCCESSIVE APOLLO LIGHT PANELS AT SPANS GREATER THAN 3000mm.

AE-170G2.RGA 170 x 75 RIDGE BEAM IN GABLE PATIO & AE-140G2.RGA 140 x 50 FRONT & EDGE BEAM

PERMISSIBLE BEAM LENGTH FOR RIDGE BEAMS

THESE CALCULATIONS REPRESENT ALL APOLLO ROOFING PROFILES

THREE SIDES OPEN CASE A

C1			C2		
A (mm)	B (mm)	O/Hang	A (mm)	B (mm)	O/Hang
Panel Spacing	Max. Post Spacing		Panel Spacing	Max. Post Spacing	
2400	5350	1500	2400	4550	1350
2700	5100	1500	2700	4350	1300
3000	4900	1450	3000	4150	1200
3300	4750	1400	3300	4000	1200
3600	4600	1350	3600	3750	1100
3900	4450	1300			
4200	4300	1250			
4500	4150	1200			

C3		
A (mm)	B (mm)	O/Hang
Panel Spacing	Max. Post Spacing	
2400	3750	1100
2700	3450	1000
3000	3200	950
3300	2950	850
3500	2750	800



PATIO COVER - CYCLONIC
GABLE PATIO - ATTACHED 140x50 BEAM
ANZGAC31C

Edition 8

TWO SIDES OPEN
CASE B

C1		
A (mm)	B (mm)	
Panel	Max. Post	O/Hang
Spacing	Spacing	
2400	4500	1350
2700	4350	1300
3000	4200	1250
3300	4050	1200
3600	3900	1150
3900	3750	1100
4200	3600	1050
4500	3500	1050

C2		
A (mm)	B (mm)	
Panel	Max. Post	O/Hang
Spacing	Spacing	
2400	3900	1150
2700	3650	1050
3000	3500	1050
3300	3300	950
3600	3150	900

C3		
A (mm)	B (mm)	
Panel	Max. Post	O/Hang
Spacing	Spacing	
2400	3200	950
2700	3000	900
3000	2850	850

ONE SIDE OPEN
CASE C

C1		
A (mm)	B (mm)	
Panel	Max. Post	O/Hang
Spacing	Spacing	
2400	4250	1250
2700	4050	1200
3000	3900	1150
3300	3700	1100
3600	3550	1050
3900	3400	1000
4200	3300	950
4500	3150	900

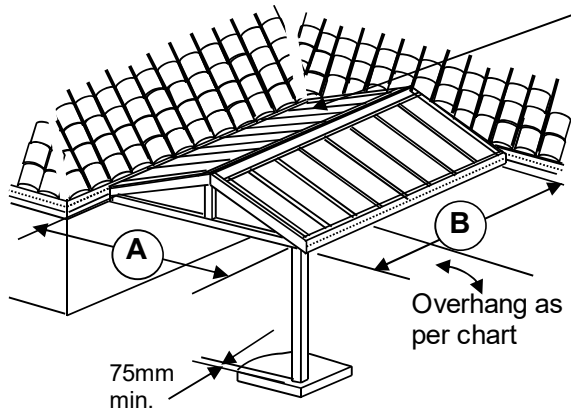
C2		
A (mm)	B (mm)	
Panel	Max. Post	O/Hang
Spacing	Spacing	
2400	3550	1050
2700	3350	1000
3000	3150	900
3300	3000	900
3600	2900	850

C3		
A (mm)	B (mm)	
Panel	Max. Post	O/Hang
Spacing	Spacing	
2400	2900	850



PATIO COVER - CYCLONIC
GABLE PATIO - ATTACHED 170x75 BEAM
ANZGAC32C

Edition 8



PRIOR TO WALKING ON ROOF - A TEMPORARY WALKWAY SHALL BE SUPPORTED ON PURLINS OR ROOF BEAMS IN ACCORDANCE WITH AS 1562.1-2018 (A SIGN TO THIS EFFECT WILL BE DISPLAYED ON THE ROOF)

A = ROOF PANEL SPAN
 B = POST SPACING

REFER TO GABLE CONNECTION
 DETAILS FOR ATTACHMENT DETAILS

FOR CASE A - OPEN 3 SIDES, HEIGHT OF PATIO FROM GROUND TO BE NO MORE THAN 75% OF ROOF HEIGHT. IF PATIO HEIGHT EXCEEDS 75% USE FIGURES FROM CASE B - OPEN 2 SIDES

NOTE 1 : THIS ENGINEERING MANUAL COVERS PRODUCTS SUPPLIED BY APOLLO @ AUSTRALIA. PRODUCTS NOT APPROVED BY APOLLO @ AUSTRALIA WILL VOID ENGINEERING APPROVALS AND ANY WARRANTIES EXPRESSED OR IMPLIED.
NOTE 2 : APOLLO LIGHT PANELS MUST BE INSTALLED WITH A MINIMUM OF 2 COMPLETE SHEETS BETWEEN SUCCESSIVE APOLLO LIGHT PANELS AT SPANS GREATER THAN 3000mm.

170 x 75 RIDGE BEAM IN GABLE PATIO. 170 x 75 EDGE & FRONT BEAM PERMISSIBLE BEAM LENGTH FOR RIDGE BEAM S
 THESE CALCULATIONS REPRESENT ALL APOLLO ROOFING PROFILES

THREE SIDES OPEN
CASE A

C1			C2		
A (mm)	B (mm)	O/Hang	A (mm)	B (mm)	O/Hang
Panel	Max. Post		Panel	Max. Post	
Spacing	Spacing		Spacing	Spacing	
2400	9300	1500	2400	8350	1500
3000	8800	1500	3000	7850	1500
3600	8400	1500	3600	7300	1500
4200	8050	1500	4200	6600	1500
4800	7700	1500	4800	6050	1500
5400	7350	1500	5400	5550	1500
6000	6850	1500	6000	5200	1500
6600	6450	1500			
7200	6050	1500			

C3		
A (mm)	B (mm)	O/Hang
Panel	Max. Post	
Spacing	Spacing	
2400	7350	1500
3000	6300	1500
3600	5600	1500
4200	5050	1450
4800	4600	1000





PATIO COVER - CYCLONIC
GABLE PATIO - ATTACHED 170x75 BEAM
ANZGAC32C

Edition 8

TWO SIDES OPEN
CASE B

C1		
A (mm)	B (mm)	O/Hang
Panel	Max. Post	
Spacing	Spacing	
2400	7700	1500
3000	7000	1500
3600	6400	1500
4200	5900	1500
4800	5500	1500
5400	5200	1500
6000	4950	1350
6600	4700	1100
7200	4500	950

ONE SIDE OPEN
CASE C

C1		
A (mm)	B (mm)	O/Hang
Panel	Max. Post	
Spacing	Spacing	
2400	7150	1500
3000	6350	1500
3600	5800	1500
4200	5350	1500
4800	5000	1450
5400	4750	1150
6000	4500	900
6600	4300	700
7200	4100	600

C2		
A (mm)	B (mm)	O/Hang
Panel	Max. Post	
Spacing	Spacing	
2400	6400	1500
3000	5700	1500
3600	5200	1500
4200	4800	1250
4800	4500	900
5400	4250	700
6000	4000	550

C2		
A (mm)	B (mm)	O/Hang
Panel	Max. Post	
Spacing	Spacing	
2400	5800	1500
3000	5200	1500
3600	4750	1500
4200	4400	1150
4800	4100	800
5400	3850	600
6000	3650	400

C3		
A (mm)	B (mm)	O/Hang
Panel	Max. Post	
Spacing	Spacing	
2400	5400	1500
3000	4800	1500
3600	4250	1100
4200	3850	700
4800	3550	450

C3		
A (mm)	B (mm)	O/Hang
Panel	Max. Post	
Spacing	Spacing	
2400	4750	1500
3000	4250	1200
3600	3900	700
4200	3600	400
4800	3350	200

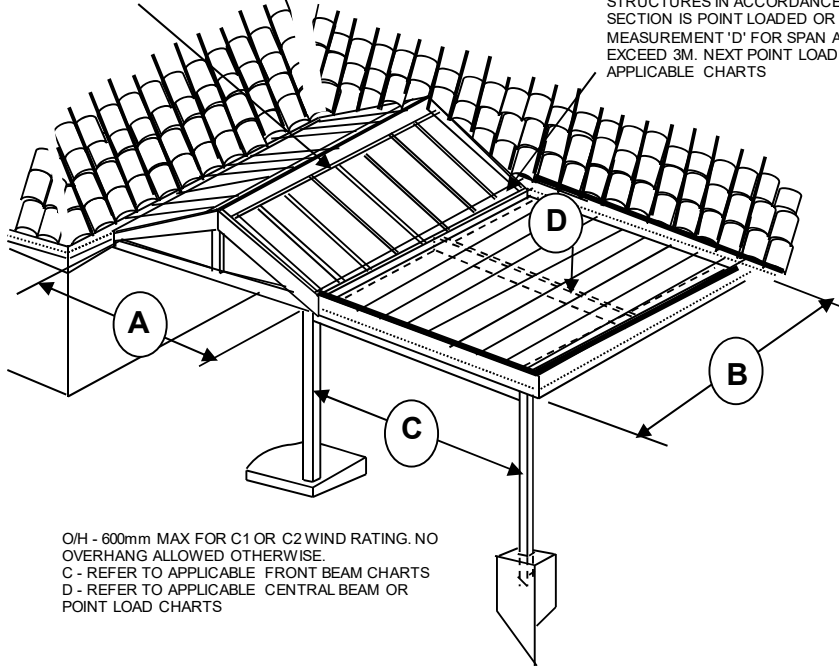


FLAT GABLE PATIO - CYCLONIC
170 x 75 BEAM
ANZGAC39C

Edition 8

PRIOR TO WALKING ON ROOF - A TEMPORARY WALKWAY SHALL BE SUPPORTED ON PURLINS OR ROOF BEAMS IN ACCORDANCE WITH AS 1562.1-2018 (A SIGN TO THIS EFFECT WILL BE DISPLAYED ON THE ROOF)

A = ROOF GABLE SPAN
 B = RIDGE BEAM LENGTH
IMPORTANT NOTE : IF 'B' IS LESS THAN OR EQUAL TO PERMISSIBLE ROOF SPAN - DESIGN GABLE AND FLAT PORTIONS AS SEPARATE STRUCTURES IN ACCORDANCE WITH GENERAL NOTES. IF FLAT SECTION IS POINT LOADED OR REQUIRES A CENTRAL BEAM MEASUREMENT 'D' FOR SPAN ADJACENT TO GABLE IS NOT TO EXCEED 3M. NEXT POINT LOAD SECTIONS DESIGNED AS PER APPLICABLE CHARTS



THESE FIGURES REFER TO GABLE STRUCTURE ONLY. FLAT PATIO DESIGNED AS PER APPLICABLE CHARTS. FLAT SECTION SIDE CHANNEL TO FIX TO GABLE PROJECTION BEAM, WITH M1016 TEK SCREWS AT 300MM CENTRES.

O/H - 600mm MAX FOR C1 OR C2 WIND RATING. NO OVERHANG ALLOWED OTHERWISE.
 C - REFER TO APPLICABLE FRONT BEAM CHARTS
 D - REFER TO APPLICABLE CENTRAL BEAM OR POINT LOAD CHARTS

SPAN TABLE - GABLE RIDGE

PERMISSIBLE BEAM LENGTH FOR RIDGE BEAM

THESE CALCULATIONS REPRESENT ALL APOLLO ROOFING PROFILES

THREE SIDES OPEN
CASE A

C1	
A (mm)	B (mm)
Panel Spacing	Max. Post Spacing
2400	5300
3000	5300
3600	5300
4200	5300
4800	5250
5400	5200
6000	5150
6600	5100
7200	5050

C2	
A (mm)	B (mm)
Panel Spacing	Max. Post Spacing
2400	4300
3000	4300
3600	4300
4200	4300
4800	4250
5400	4200
6000	4200

C3	
A (mm)	B (mm)
Panel Spacing	Max. Post Spacing
2400	3500
3000	3550
3600	3500
4200	3500
4800	3500





FLAT GABLE PATIO - CYCLONIC
170 x 75 BEAM
ANZGAC39C

Edition 8

TWO SIDES OPEN
CASE B

C1	
A (mm)	B (mm)
Panel	Max. Post
Spacing	Spacing
2400	4450
3000	4250
3600	4100
4200	4000
4800	3850
5400	3750
6000	3650
6600	3550
7200	3450

C2	
A (mm)	B (mm)
Panel	Max. Post
Spacing	Spacing
2400	3600
3000	3500
3600	3350
4200	3250
4800	3150
5400	3050
6000	2950

C3	
A (mm)	B (mm)
Panel	Max. Post
Spacing	Spacing
2400	2950
3000	2850
3600	2750
4200	2650
4800	2550

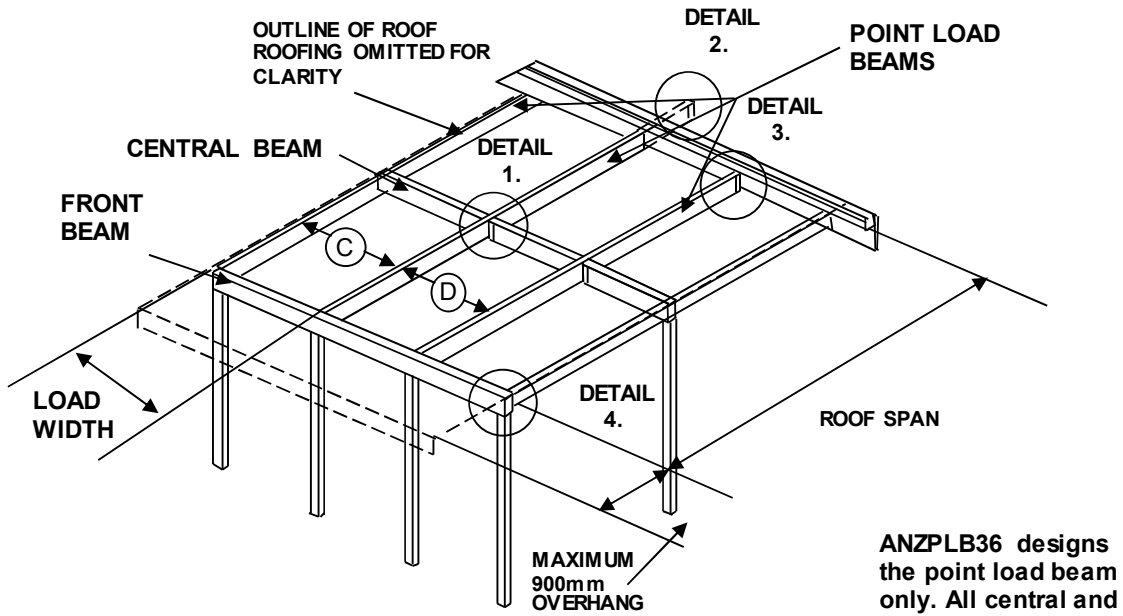
ONE SIDE OPEN
CASE C

C1	
A (mm)	B (mm)
Panel	Max. Post
Spacing	Spacing
2400	4050
3000	3750
3300	3600
3600	3500
3900	3400
4200	3300
4500	3200
4700	3150

C2	
A (mm)	B (mm)
Panel	Max. Post
Spacing	Spacing
2400	3300
3000	3150
3600	3050

C3	
A (mm)	B (mm)
Panel	Max. Post
Spacing	Spacing
2300	2700

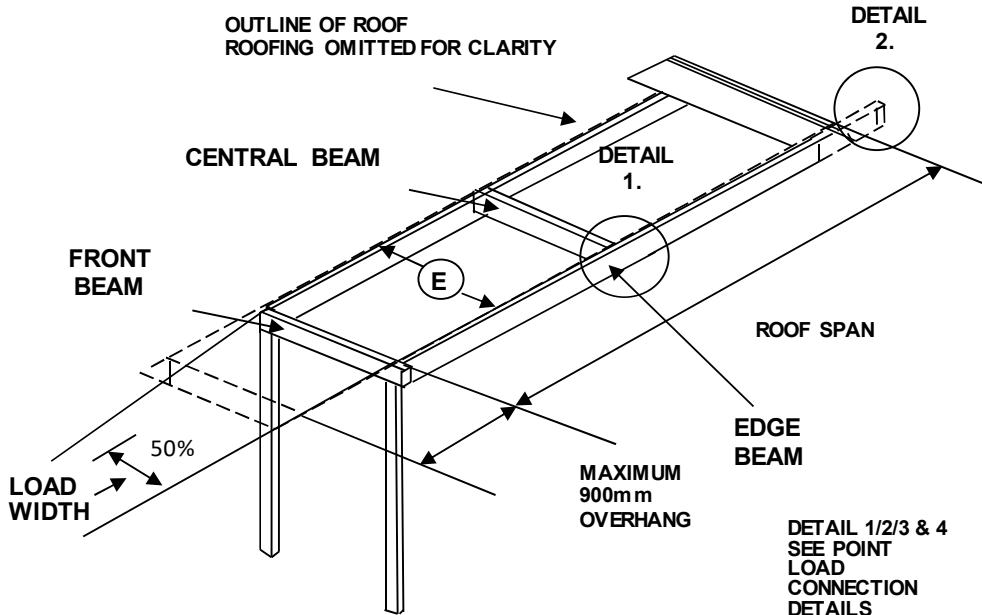
MULTIPLE MAXIMUM LOAD WIDTH



LOAD WIDTH=50% C + 50% D

ANZPLB36 designs the point load beam only. All central and front beams must conform to their respective charts

SINGLE MAXIMUM LOAD WIDTH



LOAD WIDTH = 50% E

DETAIL 1/2/3 & 4
 SEE POINT
 LOAD
 CONNECTION
 DETAILS

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POINT LOAD BEAM DESIGN - CYCLONIC
170 X 75 SINGLE BEAM
ANZPLB36C

Edition 8

THREE SIDES OPEN
CASE A

C1	
Roof Span	Load Width
(mm)	(mm)
4500	6000
4800	5200
5100	4600
5400	4100
5700	3700
6000	3300
6300	3000
6600	2700
6900	2500
7200	2100
7500	1850
7800	1650
8100	1400
8400	1300
8700	1200
9000	1000
9200	900

C2	
Roof Span	Load Width
(mm)	(mm)
4000	5100
4200	4600
4500	4000
4800	3500
5100	3100
5400	2800
5700	2500
6000	2200
6300	2000
6600	1800
6900	1550
7200	1450
7500	1300
7800	1100
8100	1000
8400	900

C3	
Roof Span	Load Width
(mm)	(mm)
3600	4200
3900	3600
4200	3100
4500	2700
4800	2400
5100	2100
5400	1900
5700	1700
6000	1500
6300	1300
6600	1200
6900	1000
7200	900



POINT LOAD BEAM DESIGN - CYCLONIC

170 X 75 SINGLE BEAM

ANZPLB36C

Edition 8

TWO SIDES OPEN CASE B

C1	
Roof Span (mm)	Load Width (mm)
4500	4200
4800	3700
5100	3200
5400	2900
5700	2600
6000	2300
6300	2100
6600	1900
6900	1700
7200	1500
7500	1300
7800	1200
8100	1000
8400	900
8700	800
9000	700
9200	600

C2	
Roof Span (mm)	Load Width (mm)
4000	3500
4200	3200
4500	2800
4800	2400
5100	2200
5400	1900
5700	1700
6000	1500
6300	1400
6600	1200
6900	1100
7200	1000
7500	900
7800	750
8100	700
8400	600

C3	
Roof Span (mm)	Load Width (mm)
3600	2900
3900	2500
4200	2200
4500	1900
4800	1600
5100	1500
5400	1300
5700	1200
6000	1000
6300	900
6600	800
6900	750
7200	650



POINT LOAD BEAM DESIGN - CYCLONIC
170 X 75 SINGLE BEAM
ANZPLB36C

Edition 8

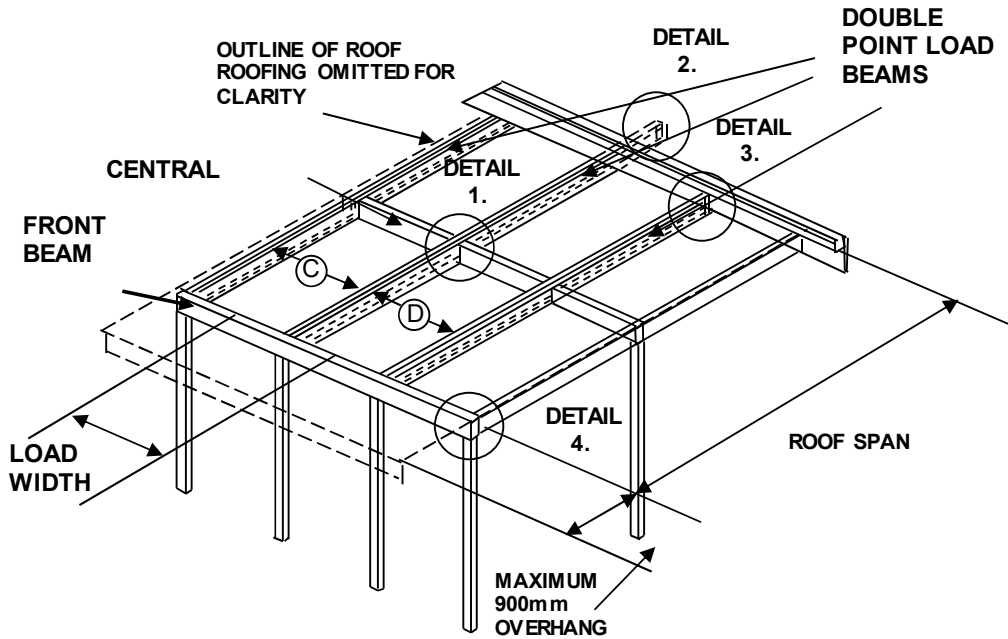
ONE SIDE OPEN
CASE C

C1	
Roof Span (mm)	Load Width (mm)
4500	3500
4800	3000
5100	2700
5400	2400
5700	2100
6000	1900
6300	1700
6600	1600
6900	1400
7200	1300
7500	1200
7800	1000
8100	900
8400	800
8700	700
9000	600
9200	500

C2	
Roof Span (mm)	Load Width (mm)
4000	2900
4200	2700
4500	2300
4800	2000
5100	1800
5400	1600
5700	1400
6000	1300
6300	1200
6600	1000
6900	900
7200	800
7500	700
7800	600
8100	550
8400	500

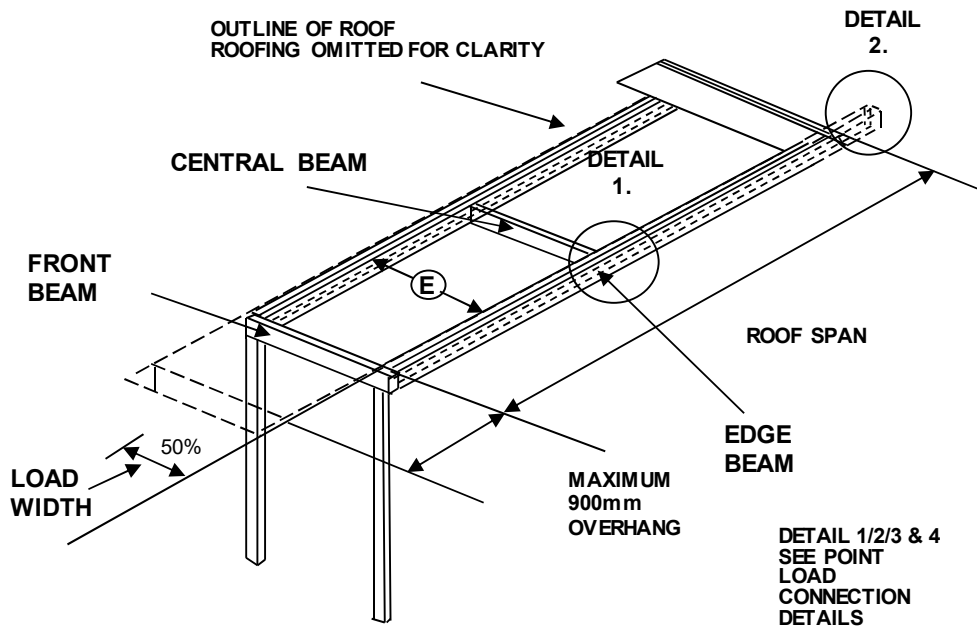
C3	
Roof Span (mm)	Load Width (mm)
3600	2300
3900	2000
4200	1800
4500	1600
4800	1400
5100	1200
5400	1100
5700	1000
6000	900
6300	800
6600	700
6900	600
7200	550

MULTIPLE MAXIMUM LOAD WIDTH



LOAD WIDTH = 50% C + 50% D

SINGLE MAXIMUM LOAD WIDTH



LOAD WIDTH = 50% E

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DOUBLE POINT LOAD BEAM DESIGN
CYCLONIC 2x170x75 BEAMS
ANZPLB37C

Edition 8

THREE SIDES OPEN
CASE A

C1	
Roof Span (mm)	Load Width (mm)
4500	12000
4800	10500
5100	9300
5400	8300
5700	7500
6000	6700
6300	6100
6600	5500
6900	5100
7200	4200
7500	3700
7800	3300
8100	2800
8400	2600
8700	2400
9000	2100
9200	1900

C2	
Roof Span (mm)	Load Width (mm)
4000	10200
4200	9200
4500	8000
4800	7100
5100	6300
5400	5600
5700	5000
6000	4500
6300	4100
6600	3700
6900	3100
7200	2900
7500	2600
7800	2200
8100	2100
8400	1900

C3	
Roof Span (mm)	Load Width (mm)
3600	8500
3900	7300
4200	6300
4500	5500
4800	4800
5100	4200
5400	3800
5700	3400
6000	3000
6300	2600
6600	2500
6900	2000
7200	1800



DOUBLE POINT LOAD BEAM DESIGN
CYCLONIC 2x170x75 BEAMS
ANZPLB37C

Edition 8

TWO SIDES OPEN
CASE B

C1	
Roof Span	Load Width
(mm)	(mm)
4500	8400
4800	7400
5100	6500
5400	5800
5700	5200
6000	4700
6300	4200
6600	3900
6900	3500
7200	3000
7500	2600
7800	2400
8100	2000
8400	1900
8700	1700
9000	1400
9200	1300

C2	
Roof Span	Load Width
(mm)	(mm)
4000	7100
4200	6500
4500	5600
4800	4900
5100	4400
5400	3900
5700	3500
6000	3100
6300	2800
6600	2400
6900	2200
7200	2000
7500	1900
7800	1550
8100	1500
8400	1300

C3	
Roof Span	Load Width
(mm)	(mm)
3600	5900
3900	5100
4200	4400
4500	3800
4800	3300
5100	3000
5400	2600
5700	2400
6000	2100
6300	1900
6600	1700
6900	1500
7200	1300



DOUBLE POINT LOAD BEAM DESIGN

CYCLONIC 2x170x75 BEAMS

ANZPLB37C

Edition 8

ONE SIDE OPEN CASE C

C1	
Roof Span (mm)	Load Width (mm)
4500	7000
4800	6100
5100	5400
5400	4800
5700	4300
6000	3900
6300	3500
6600	3200
6900	2900
7200	2700
7500	2500
7800	2100
8100	1900
8400	1600
8700	1400
9000	1200
9200	1100

C2	
Roof Span (mm)	Load Width (mm)
4000	5900
4200	5400
4500	4700
4800	4100
5100	3600
5400	3200
5700	2900
6000	2600
6300	2400
6600	2100
6900	1800
7200	1600
7500	1400
7800	1200
8100	1150
8400	1100

C3	
Roof Span (mm)	Load Width (mm)
3600	4600
3900	4000
4200	3600
4500	3200
4800	2800
5100	2500
5400	2200
5700	2000
6000	1800
6300	1600
6600	1400
6900	1300
7200	1100

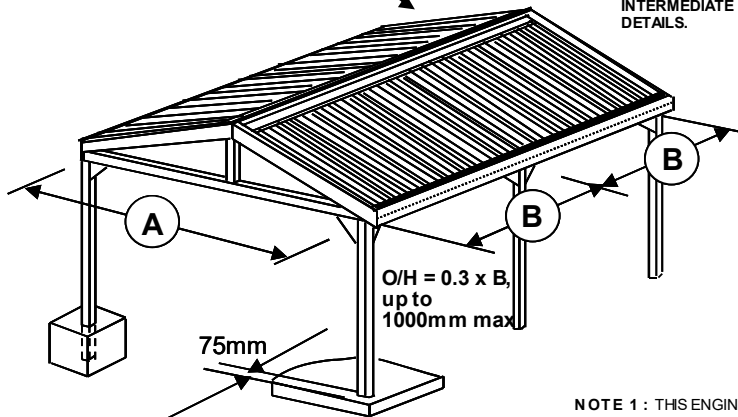


FREESTANDING GABLE - CYCLONIC
170 X 75 BEAM
ANZGAC35C

Edition 8

PRIOR TO WALKING ON ROOF - A TEMPORARY WALKWAY SHALL BE SUPPORTED ON PURLINS OR ROOF BEAMS IN ACCORDANCE WITH AS 1562.1-2018 (A SIGN TO THIS EFFECT IS TO BE DISPLAYED PERMANENTLY ON THE ROOF)

ALL GABLE ENDS AND GABLES BETWEEN INTERMEDIATE POSTS ARE TO BE TRUSSED AS PER DETAILS.



ALL POSTS ARE TO HAVE GUSSET CONNECTIONS TO ALL SUPPORTED BEAMS AND TRUSSED GABLES. THE GABLE ENDS OF THE PATIO ARE NOT TO BE SHEETED. THE MAXIMUM POST HEIGHTS ARE AS PER ANZFC01

NOTE 1 : THIS ENGINEERING MANUAL COVERS PRODUCTS SUPPLIED BY APOLLO® AUSTRALIA. PRODUCTS NOT APPROVED BY APOLLO® AUSTRALIA WILL VOID ENGINEERING APPROVALS AND ANY WARRANTIES EXPRESSED OR IMPLIED. **NOTE 2 :** APOLLO LIGHT PANELS MUST BE INSTALLED WITH A MINIMUM OF 2 COMPLETE SHEETS BETWEEN SUCCESSIVE APOLLO LIGHT PANELS AT SPANS GREATER THAN 3M.

1 = RIDGE BEAM CONNECTION
 2 = POSTS TO BEAM CONNECTION
 REFER SEPARATE DIAGRAMS

A = ROOF PANEL SPAN
 B = POST SPACING

SPAN TABLES - SIMPLE SPAN

PERMISSIBLE BEAM LENGTH FOR RIDGE BEAM

THESE CALCULATIONS REPRESENT ALL APOLLO ROOFING PROFILES

CASE A

C1		
A (mm)	B (mm)	
Panel Spacing	Max. Post Spacing	Post Required
2400	8800	75 x 3.0 SHS
3000	8350	90 x 3.5 SHS
3600	7950	90 x 3.5 SHS
4200	7600	90 x 3.5 SHS
4800	7250	100 x 4.0 SHS
5400	6800	100 x 4.0 SHS
6000	6450	100 x 4.0 SHS
6600	6150	100 x 4.0 SHS
7200	5900	100 x 4.0 SHS

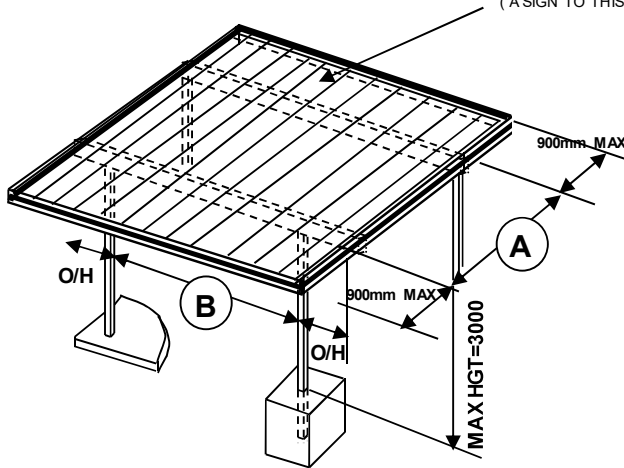
C2		
A (mm)	B (mm)	
Panel Spacing	Max. Post Spacing	Post Required
2400	7950	90 x 3.5 SHS
3000	7450	90 x 3.5 SHS
3600	6800	100 x 4.0 SHS
4200	6250	100 x 4.0 SHS
4800	5850	100 x 4.0 SHS
5400	5550	100 x 4.0 SHS
6000	5250	100 x 4.0 SHS

C3		
A (mm)	B (mm)	
Panel Spacing	Max. Post Spacing	Post Required
2400	6800	100 x 4.0 SHS
3000	6100	100 x 4.0 SHS
3600	5550	100 x 4.0 SHS
4200	5150	100 x 4.0 SHS
4800	4500	100 x 4.0 SHS

For footing and slab attachment details refer to ANZFC01



PRIOR TO WALKING ON ROOF - A TEMPORARY WALKWAY SHALL BE SUPPORTED ON PURLINS OR ROOF BEAMS IN ACCORDANCE WITH AS 1562.1-2018 (A SIGN TO THIS EFFECT IS TO BE DISPLAYED ON THE ROOF)



NOTE 1 : APOLLO LIGHT PANELS MUST BE INSTALLED WITH A MINIMUM OF 2 COMPLETE SHEETS BETWEEN SUCCESSIVE APOLLO LIGHT PANELS AT SPANS GREATER THAN 3M.

A = ROOF PANEL SPAN
 B = POST SPACING
 O/H = 30% OF (B) MAX. 1500mm

SPAN TABLES - SIMPLE SPAN

PERMISSIBLE BEAM LENGTH FOR BEAMS

THESE CALCULATIONS REPRESENT ALL APOLLO ROOFING PROFILES

CASE A

C1			C2		
A (mm)	B (mm)		A (mm)	B (mm)	
Panel Spacing	Max. Post Spacing	Post Required	Panel Spacing	Max. Post Spacing	Post Required
2400	4200	75 x 3.0 SHS	2400	3500	90 x 3.5 SHS
2700	4100	90 x 3.5 SHS	2700	3400	90 x 3.5 SHS
3000	3950	90 x 3.5 SHS	3000	3200	90 x 3.5 SHS
3300	3850	90 x 3.5 SHS	3300	3000	90 x 3.5 SHS
3600	3750	90 x 3.5 SHS	3600	2850	100 x 4.0 SHS
3900	3650	90 x 3.5 SHS	3900	2700	100 x 4.0 SHS
4200	3600	90 x 3.5 SHS	4100	2600	100 x 4.0 SHS
4400	3550	90 x 3.5 SHS			
4700	3450	90 x 3.5 SHS			

C3		
A (mm)	B (mm)	
Panel Spacing	Max. Post Spacing	Post Required
1800	2850	90 x 3.5 SHS
2100	2650	90 x 3.5 SHS
2400	2450	100 x 4.0 SHS
2700	2300	100 x 4.0 SHS
3000	2150	100 x 4.0 SHS
3100	2100	100 x 4.0 SHS

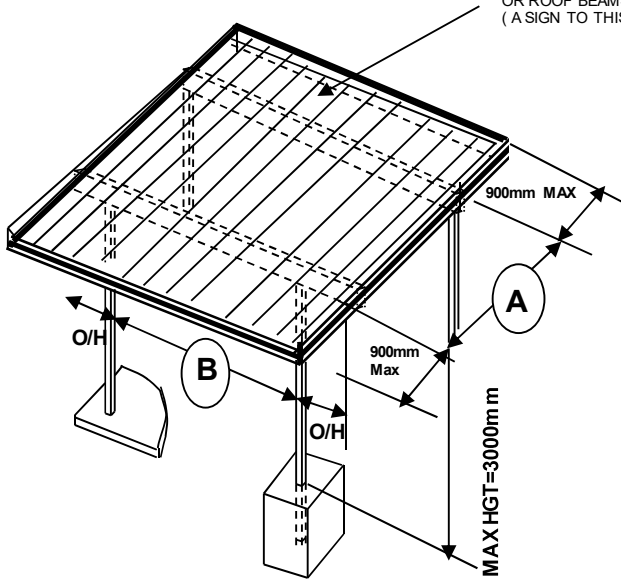
For footing and slab attachment details refer to ANZFC01



FREESTANDING PATIO - CYCLONIC
170 X 75 SINGLE BEAM
ANZFS28C

Edition 8

PRIOR TO WALKING ON ROOF - A TEMPORARY WALKWAY SHALL BE SUPPORTED ON PURLINS OR ROOF BEAMS IN ACCORDANCE WITH AS 1562.1-2018 (A SIGN TO THIS EFFECT IS TO BE DISPLAYED ON THE ROOF)



NOTE 1 : APOLLO LIGHT PANELS MUST BE INSTALLED WITH A MINIMUM OF 2 COMPLETE SHEETS BETWEEN SUCCESSIVE APOLLO LIGHT PANELS AT SPANS GREATER THAN 3M.

A = ROOF PANEL SPAN
 B = POST SPACING
 O/H = 30% OF (B) MAX. 1500mm

SPAN TABLES - SIMPLE SPAN

PERMISSIBLE BEAM LENGTH FOR BEAMS

THESE CALCULATIONS REPRESENT ALL APOLLO ROOFING PROFILES

CASE A

C1		
Panel Spacing A (mm)	Max. Post Spacing B (mm)	Post Required
1800	7800	75 x 3.0 SHS
2100	7650	90 x 3.5 SHS
2400	7500	90 x 3.5 SHS
2700	7200	90 x 3.5 SHS
3000	6950	90 x 3.5 SHS
3300	6750	90 x 3.5 SHS
3600	6550	90 x 3.5 SHS
3900	6350	90 x 3.5 SHS
4200	6200	90 x 3.5 SHS

C2		
Panel Spacing A (mm)	Max. Post Spacing B (mm)	Post Required
1800	6550	90 x 3.5 SHS
2100	6300	90 x 3.5 SHS
2400	6050	90 x 3.5 SHS
2700	5850	90 x 3.5 SHS
3000	5650	90 x 3.5 SHS
3300	5450	100 x 4.0 SHS
3600	5300	100 x 4.0 SHS

C3		
Panel Spacing A (mm)	Max. Post Spacing B (mm)	Post Required
1800	5350	100 x 4.0 SHS
2100	5150	100 x 4.0 SHS
2400	4950	100 x 4.0 SHS
2700	4800	100 x 4.0 SHS

For footing and slab attachment details refer to ANZFC01

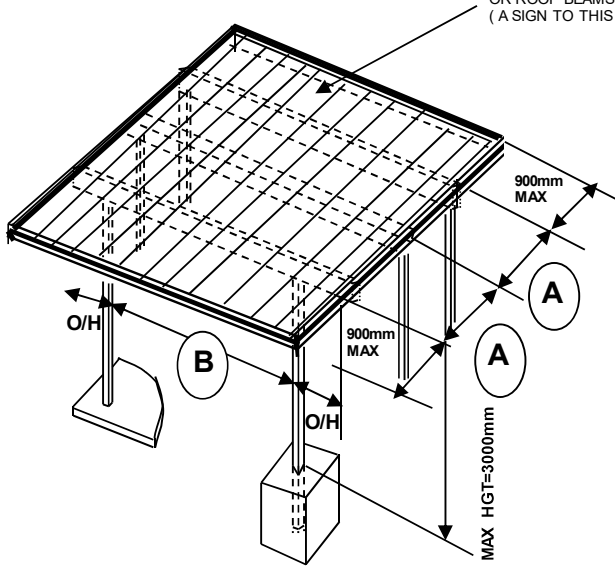




FREESTANDING PATIO - CYCLONIC
140 X 50 CENTRAL BEAM SPANS
ANZFS24C

Edition 8

PRIOR TO WALKING ON ROOF - A TEMPORARY WALKWAY SHALL BE SUPPORTED ON PURLINS OR ROOF BEAMS IN ACCORDANCE WITH AS 1562.1-2018 (A SIGN TO THIS EFFECT IS TO BE DISPLAYED ON THE ROOF)



NOTE 1 : APOLLO LIGHT PANELS MUST BE INSTALLED WITH A MINIMUM OF 2 COMPLETE SHEETS BETWEEN SUCCESSIVE APOLLO LIGHT PANELS AT SPANS GREATER THAN 3M.

A = ROOF PANEL SPAN
 B = POST SPACING
 O/H = 30% OF (B) MAX. 1500mm

SPAN TABLES - SIMPLE SPAN PERMISSIBLE BEAM LENGTH FOR INTERNAL BEAMS, REFER TO APPLICABLE CHARTS FOR FRONT & REAR BEAMS
 THESE CALCULATIONS REPRESENT ALL APOLLO ROOFING PROFILES

CASE A

C1			C2		
A (mm)	B (mm)	Post	A (mm)	B (mm)	Post
Panel Spacing	Max. Post Spacing	Required	Panel Spacing	Max. Post Spacing	Required
2400	3950	75 x 3.0 SHS	2400	3200	90 x 3.5 SHS
2700	3750	75 x 3.0 SHS	2700	2850	90 x 3.5 SHS
3000	3600	90 x 3.5 SHS	3000	2550	90 x 3.5 SHS
3300	3450	90 x 3.5 SHS	3300	2300	90 x 3.5 SHS
3600	3200	90 x 3.5 SHS	3600	2100	90 x 3.5 SHS
3900	2950	90 x 3.5 SHS	3900	1950	90 x 3.5 SHS
4200	2750	90 x 3.5 SHS	4100	1800	100 x 4.0 SHS
4400	2600	90 x 3.5 SHS			
4700	2450	90 x 3.5 SHS			

C3		
A (mm)	B (mm)	Post
Panel Spacing	Max. Post Spacing	Required
1800	2850	90 x 3.5 SHS
2100	2450	90 x 3.5 SHS
2400	2150	100 x 4.0 SHS
2700	1900	100 x 4.0 SHS

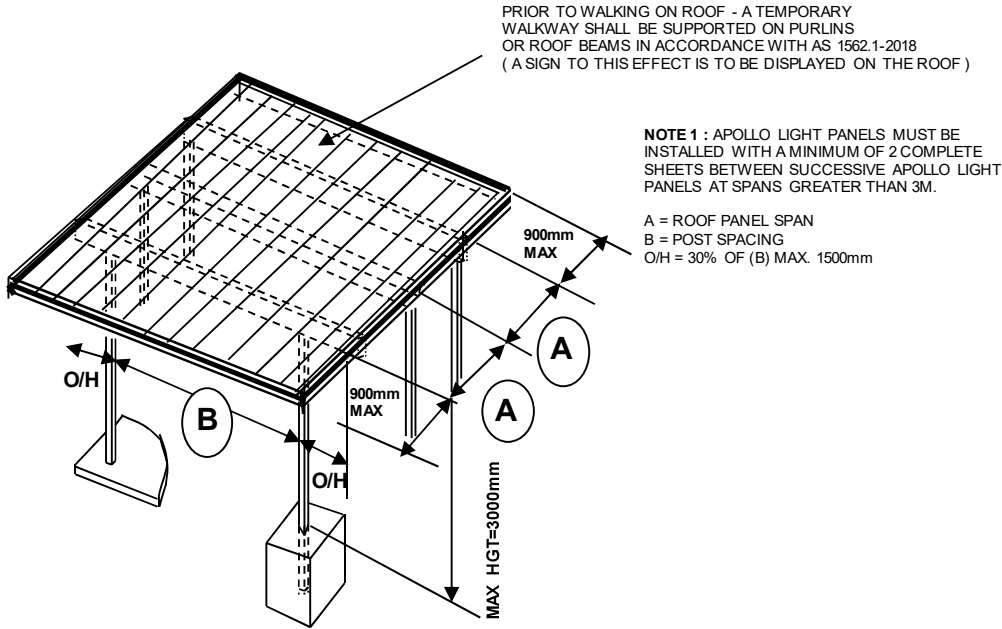
For footing and slab attachment details refer to ANZFC01





FREESTANDING PATIO - CYCLONIC
170x75 CENTRAL BEAM SPAN
ANZFS29C

Edition 8



SPAN TABLES - SIMPLE SPAN PERMISSIBLE BEAM LENGTH FOR INTERNAL BEAMS REFER TO APPLICABLE CHARTS FOR FRONT & REAR BEAMS
 THESE CALCULATIONS REPRESENT ALL APOLLO ROOFING PROFILES

CASE A

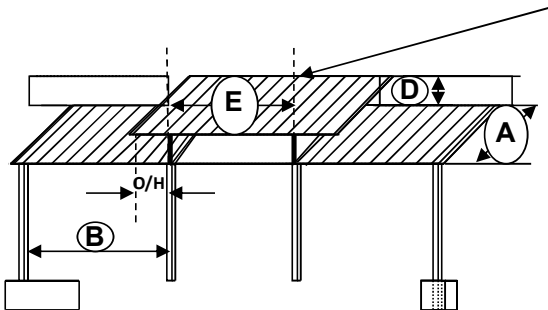
C1			C2		
Panel Spacing	Max. Post Spacing	Post Required	Panel Spacing	Max. Post Spacing	Post Required
A (mm)	B (mm)		A (mm)	B (mm)	
1800	7800	90 x 3.5 SHS	1800	6550	90 x 3.5 SHS
2100	7500	90 x 3.5 SHS	2100	6050	90 x 3.5 SHS
2400	7000	90 x 3.5 SHS	2400	5650	90 x 3.5 SHS
2700	6600	90 x 3.5 SHS	2700	5300	100 x 4.0 SHS
3000	6250	90 x 3.5 SHS	3000	5050	100 x 4.0 SHS
3300	5950	90 x 3.5 SHS	3300	4800	100 x 4.0 SHS
3600	5700	90 x 3.5 SHS	3600	4600	100 x 4.0 SHS
3900	5450	90 x 3.5 SHS			
4200	5250	90 x 3.5 SHS			

C3		
Panel Spacing	Max. Post Spacing	Post Required
A (mm)	B (mm)	
1800	5350	100 x 4.0 SHS
2100	4950	100 x 4.0 SHS
2400	4650	100 x 4.0 SHS
2700	4350	100 x 4.0 SHS

For footing and slab attachment details refer to ANZFC01



PRIOR TO WALKING ON ROOF - A TEMPORARY WALKWAY SHALL BE SUPPORTED ON PURLINS OR ROOF BEAMS IN ACCORDANCE WITH AS 1562.1-2018 (A SIGN TO THIS EFFECT IS TO BE DISPLAYED ON THE ROOF)



A = ROOF PANEL SPAN
 B = POST SPACING
 O/H = 30% OF (B) MAX. 1500mm
 D = MAX HEIGHT 1100MM

FOR CASE A - OPEN 3 SIDES, HEIGHT OF PATIO FROM GROUND TO BE NO MORE THAN 75% OF ROOF HEIGHT. IF PATIO HEIGHT EXCEEDS 75% USE FIGURES FROM CASE B - OPEN 2 SIDES

NOTE 1 : APOLLO LIGHT PANELS MUST BE INSTALLED WITH A MINIMUM OF 2 COMPLETE SHEETS BETWEEN SUCCESSIVE APOLLO LIGHT PANELS.

SPAN TABLES - SIMPLE SPAN

PERMISSIBLE BEAM LENGTH FOR EDGE BEAMS

THESE CALCULATIONS REPRESENT ALL APOLLO ROOFING PROFILES

THREE SIDES OPEN
CASE A

C1	
A (mm)	B (mm)
Panel Spacing	Max. Post Spacing
2400	5050
2700	5000
3000	4950
3300	4900
3600	4850
3900	4800
4200	4750
4400	4700
4600	4650

C2	
A (mm)	B (mm)
Panel Spacing	Max. Post Spacing
2400	4200
2700	4150
3000	4100
3300	4050
3600	4000
3900	3950
4100	3950

C3	
A (mm)	B (mm)
Panel Spacing	Max. Post Spacing
2400	3500
2700	3450
3000	3400
3300	3400
3500	3300



BREEZE WAY PATIO COVER - CYCLONIC

140 X 50 BEAM

ANZBW20C

Edition 8

TWO SIDES OPEN CASE B

C1	
A (mm)	B (mm)
Panel	Max. Post
Spacing	Spacing
2400	3750
2700	3600
3000	3500
3300	3400
3600	3250
3900	3100
4200	2950

C2	
A (mm)	B (mm)
Panel	Max. Post
Spacing	Spacing
2400	2800
2700	2600
3000	2450
3300	2300
3600	2150

ONE SIDE OPEN CASE C

C1	
A (mm)	B (mm)
Panel	Max. Post
Spacing	Spacing
2400	3400
2700	3250
3000	3050
3300	2850
3600	2700
3900	2550

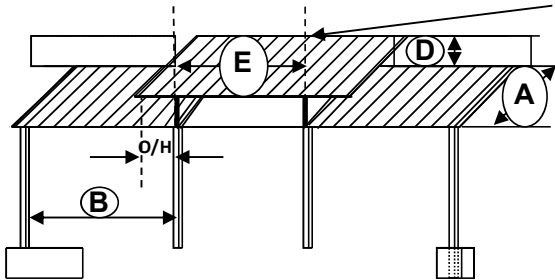
C2	
A (mm)	B (mm)
Panel	Max. Post
Spacing	Spacing
1800	2700
2100	2500
2400	2300
2700	2150
3000	2000
3200	1900



BREEZE WAY PATIO COVER - CYCLONIC
170 X 75 BEAM
ANZBW21C

Edition 8

PRIOR TO WALKING ON ROOF - A TEMPORARY WALKWAY SHALL BE SUPPORTED ON PURLINS OR ROOF BEAMS IN ACCORDANCE WITH AS 1562.1-2018 (A SIGN TO THIS EFFECT IS TO BE DISPLAYED ON THE ROOF)



A = ROOF PANEL SPAN
 B = POST SPACING
 O/H = 30% OF (B) MAX. 1500mm
 D = MAX HEIGHT 1100MM

FOR CASE A - OPEN 3 SIDES, HEIGHT OF PATIO FROM GROUND TO BE NO MORE THAN 75% OF ROOF HEIGHT. IF PATIO HEIGHT EXCEEDS 75% USE FIGURES FROM CASE B - OPEN 2 SIDES

NOTE 1 : APOLLO LIGHTS MUST BE INSTALLED WITH A MINIMUM OF 2 COMPLETE SHEETS BETWEEN SUCCESSIVE APOLLO LIGHT PANELS.

SPAN TABLES - SIMPLE SPAN

PERMISSIBLE BEAM LENGTH FOR EDGE BEAMS

THESE CALCULATIONS REPRESENT ALL APOLLO ROOFING PROFILES

THREE SIDES OPEN
CASE A

C1	
Panel Spacing	Max. Post Spacing
A (mm)	B (mm)
2400	8300
2700	8300
3000	8250
3300	8200
3600	8150
3900	8100
4200	8000
4500	7950
4600	7930

C2	
Panel Spacing	Max. Post Spacing
A (mm)	B (mm)
2400	7400
2700	7300
3000	7250
3300	7150
3600	7050
4000	6900
4100	6860

C3	
Panel Spacing	Max. Post Spacing
A (mm)	B (mm)
2400	6050
2700	5950
3000	5900
3300	5850
3500	5810



BREEZE WAY PATIO COVER - CYCLONIC

170 X 75 BEAM

ANZBW21C

Edition 8

TWO SIDES OPEN

CASE B

C1	
Panel Spacing	Max. Post Spacing
A (mm)	B (mm)
2400	6500
2700	6250
3000	6050
3300	5850
3600	5700
3900	5550
4200	5400

C2	
Panel Spacing	Max. Post Spacing
A (mm)	B (mm)
2400	5250
2700	5100
3000	4950
3300	4800
3600	4650

C3	
Panel Spacing	Max. Post Spacing
A (mm)	B (mm)
2400	4300
2700	4200

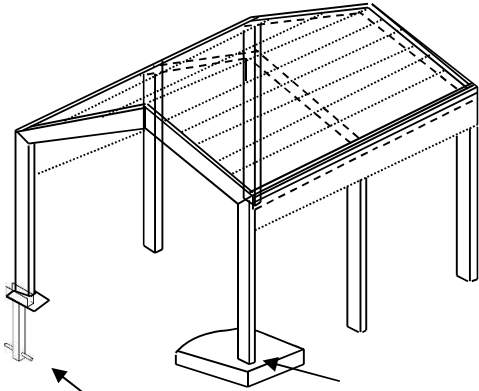
THREE SIDES OPEN

CASE C

C1	
Panel Spacing	Max. Post Spacing
A (mm)	B (mm)
2400	5900
2700	5700
3000	5500
3300	5350
3600	5200
3900	5050

C2	
Panel Spacing	Max. Post Spacing
A (mm)	B (mm)
2400	4800
2700	4650
3000	4500
3200	4400

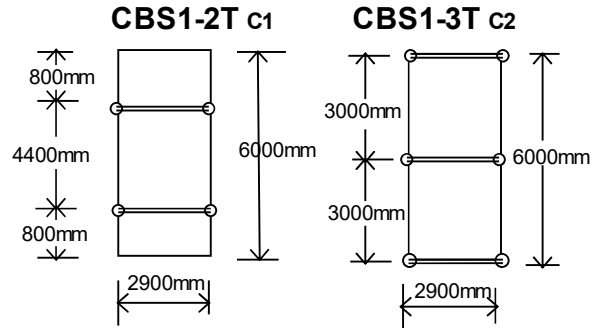
C3	
Panel Spacing	Max. Post Spacing
A (mm)	B (mm)
2300	3950



Bored pier or Pad
 Footings M12 U-Bolt
 500mm embedment

Slab attachment **A767**
 with 2 x 12x100 mm
 dynabolts min

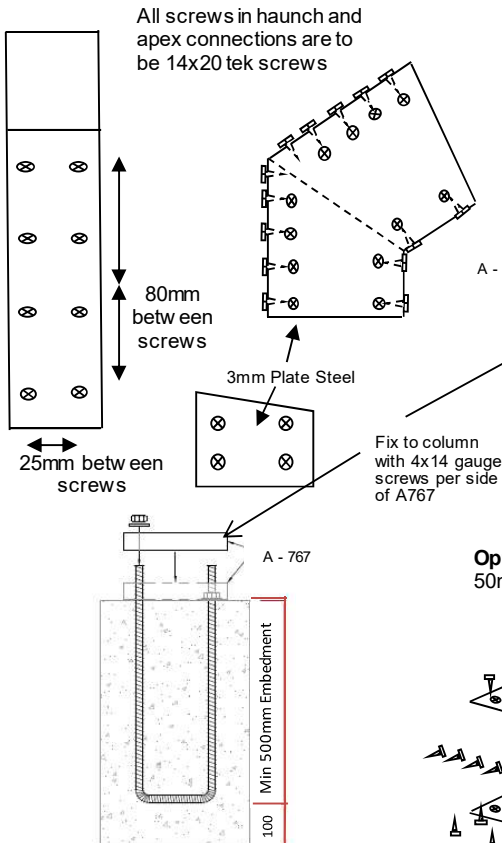
Portal & Footing Spaces



Notes

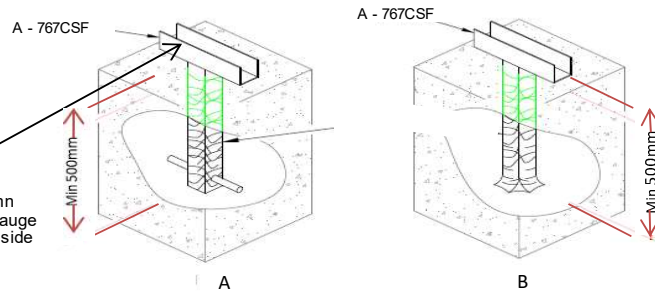
Roof sheets secured with 12x20 tek screws with neoprenes & Cyclone Washers. Haunch and apex connections secured with 20 x 14x20 tek screws per leg (40 per connection). Concrete to Apollo® Footing Code ANZFC01. Beams may be squarecut and flashed Apex connector is **A757** 3mm plate steel Knee connector is **A756** 3mm plate steel

Haunch Connection Details



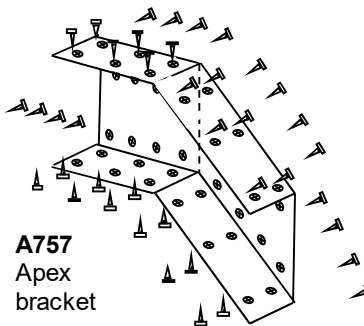
Post to Footings U-Bolt

Post to Footings



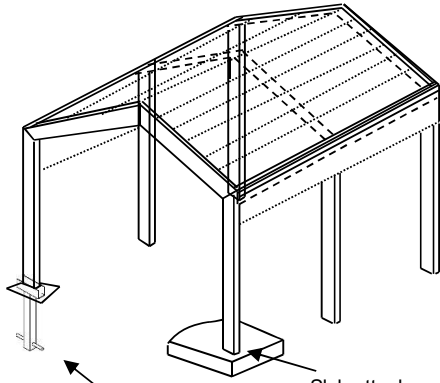
Option A N12: Bar through post 50mm from end

Option B: Deformed end of post



A757
 Apex
 bracket

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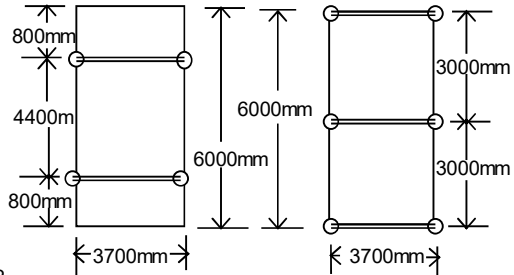


Slab attachment **A767** with 2 x 12x100 mm dynabolts minimum
 Bored pier or Pad Footings M12 U-Bolt 500mm embedment

Portal & Footing Spaces

CBS2-2T c1

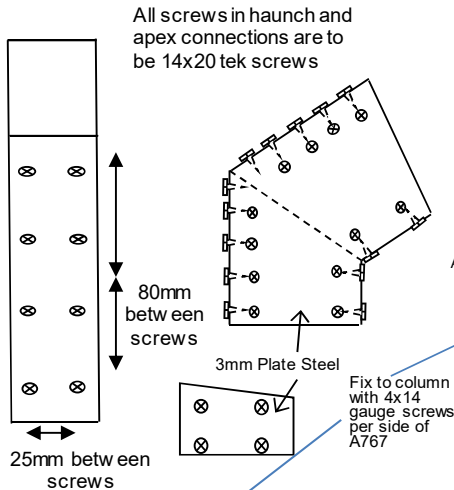
CBS2-3T c2



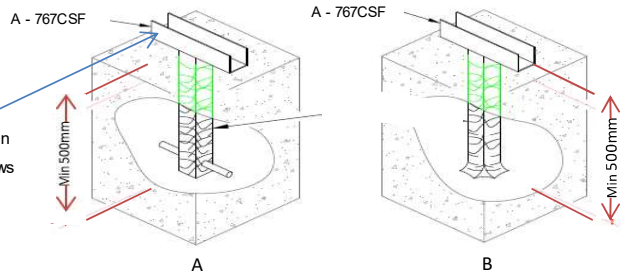
Notes

Roof sheets secured with 12x20 tek screws with neoprenes & Cyclone Washers. Haunch and apex connections secured with 20 x 14x20 tek screws per leg (40 per connection). Concrete to Apollo® Footing Code ANZFC01. Beams may be squarecut and flashed Apex connector is **A757** 3mm plate steel Knee connector is **A756** 3mm plate steel

Haunch Connection Details

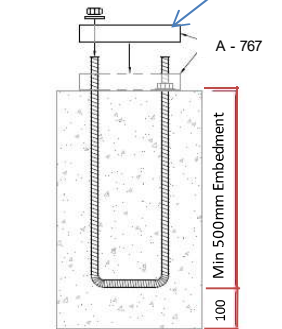


Post to Footings

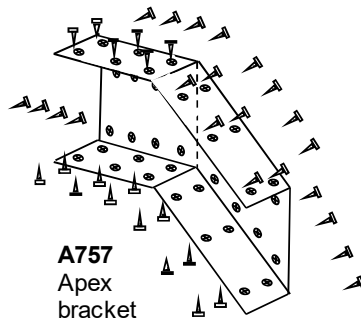


Option A N12: Bar through post 50mm from end

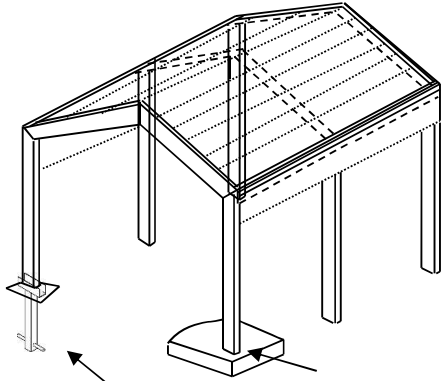
Option B: Deformend of post



Post to Footings U-Bolt

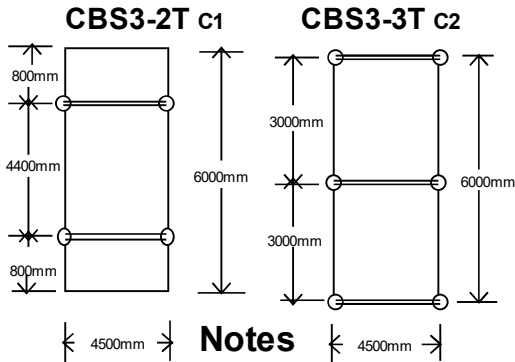


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Bored pier or Pad Footings M12 U-Bolt 500mm embedment
 Slab attachment **A767** w with 2 x 12x100mm dynabolts minimum

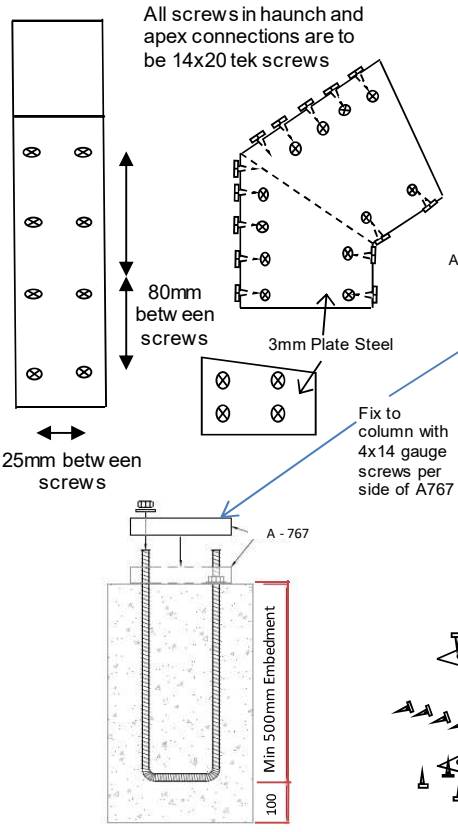
Portal & Footing Spaces



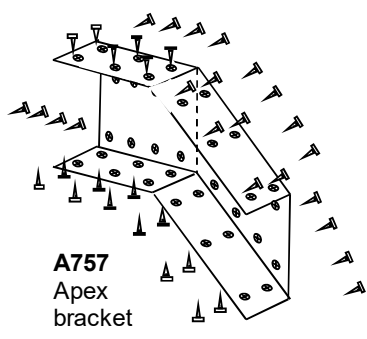
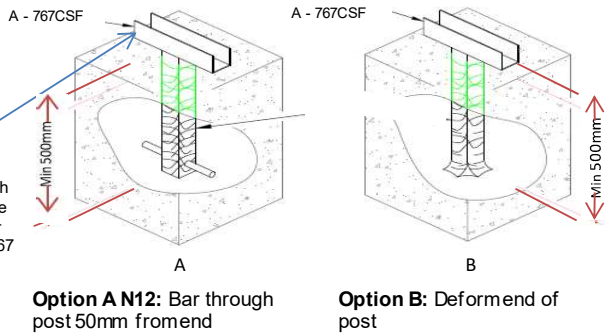
Notes

Roof sheets secured with 12x20 tek screws with neoprenes & Cyclone Washers. Haunch and apex connections secured with 20 x 14x20 tek screws per leg (40 per connection). Concrete to Apollo® Footing Code ANZFC01. Beams may be squarecut and flashed Apex connector is **A757** 3mm plate steel Knee connector is **A756** 3mm plate steel

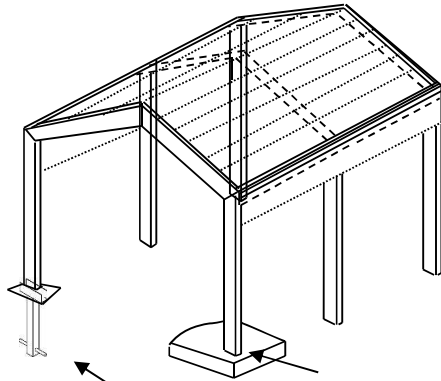
Haunch Connection Details



Post to Footings



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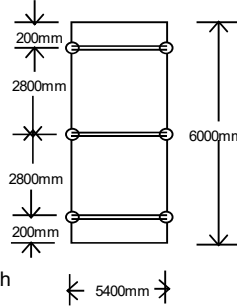


Bored pier or Pad Footings M12 U-Bolt 500mm embedment

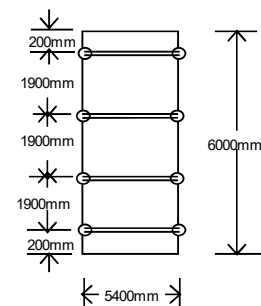
Slab attachment **A767** with 2 x 12x100 mm dynabolts minimum

Portal & Footing Spaces

CBS4-3T c1



CBS4-4T c2

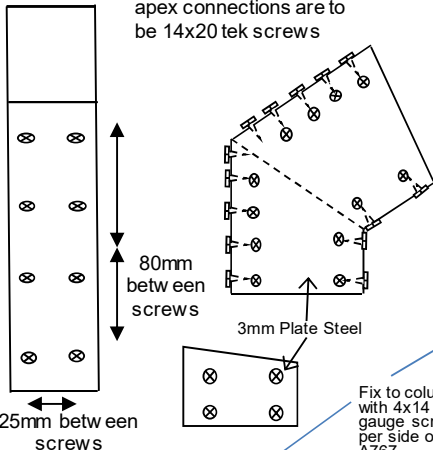


Notes

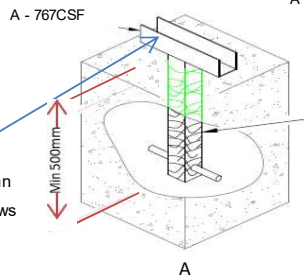
Roof sheets secured with 12x20 tek screws with neoprenes & Cyclone Washers. Haunch and apex connections secured with 20 x 14x20 tek screws per leg (40 per connection). Concrete to Apollo® Footing Code ANZFC01. Beams may be squarecut and flashed Apex connector is **A757** 3mm plate steel Knee connector is **A756** 3mm plate steel

Haunch Connection Details

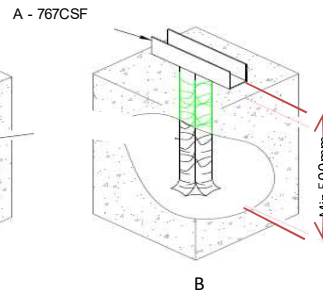
All screws in haunch and apex connections are to be 14x20 tek screws



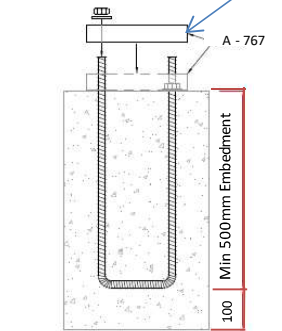
Post to Footings



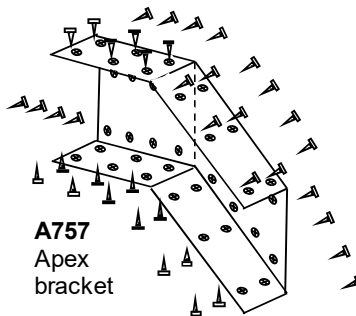
Option A N12: Bar through post 50mm from end



Option B: Deformend of post

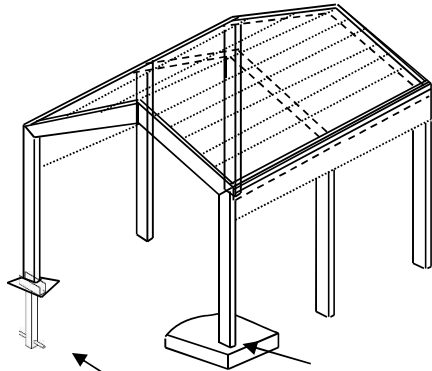


Post to Footings U-Bolt



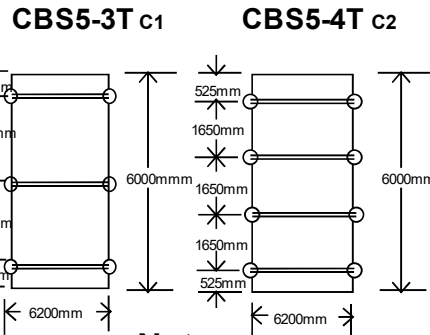
A757
Apex bracket

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Bored pier or Pad Footings M12 U-Bolt 500mm embedment
 Slab attachment **A767** with 2 x 12x100mm dynabolts minimum

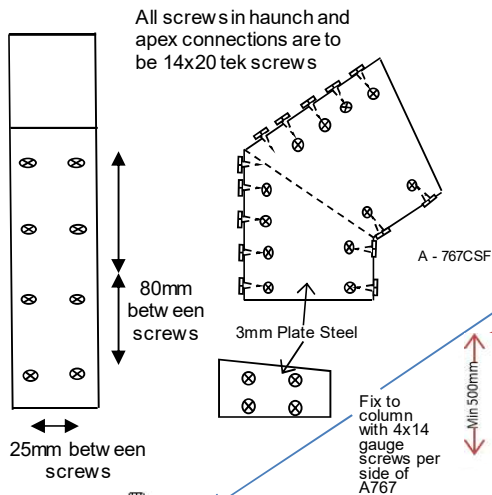
Portal & Footing Spaces



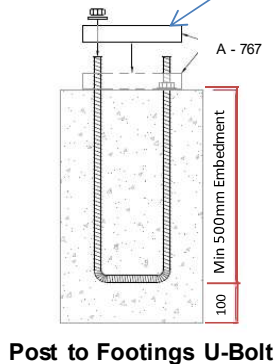
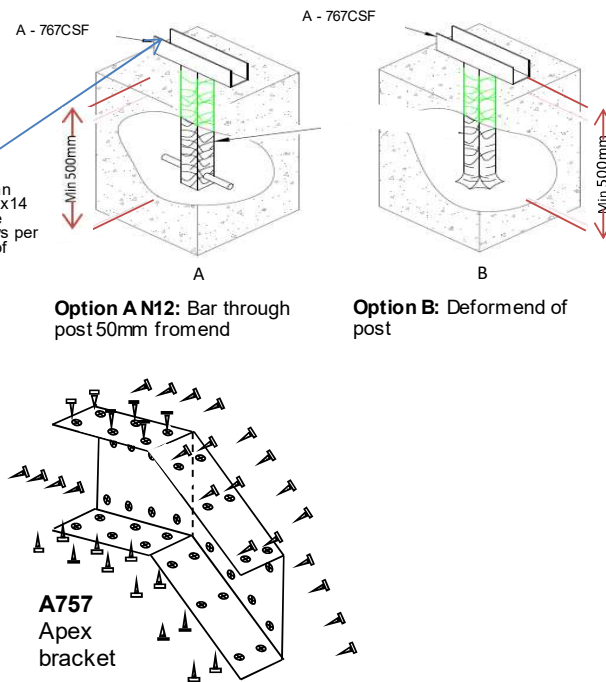
Notes

Roof sheets secured with 12x20 tek screws with neoprenes & Cyclone Washers. Haunch and apex connections secured with 20 x 14x20 tek screws per leg (40 per connection). Concrete to Apollo® Footing Code ANZFC01. Beams may be squarecut and flashed Apex connector is **A757** 3mm plate steel Knee connector is **A756** 3mm plate steel

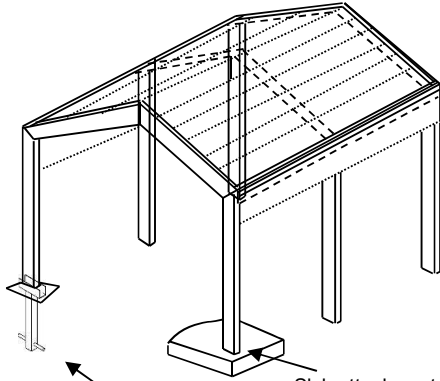
Haunch Connection Details



Post to Footings



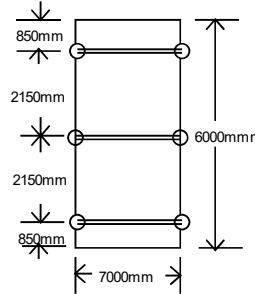
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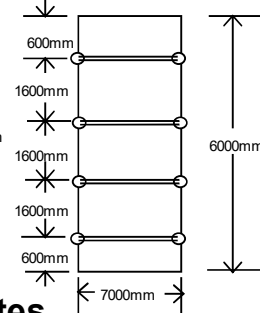
Bored pier or Pad Footings M12 U-Bolt 500mm embedment
 Slab attachment **A767** with 2 x 12x100 mm dynabolts minimum

Portal & Footing Spaces

CBS6-3T c1



CBS6-4T c2

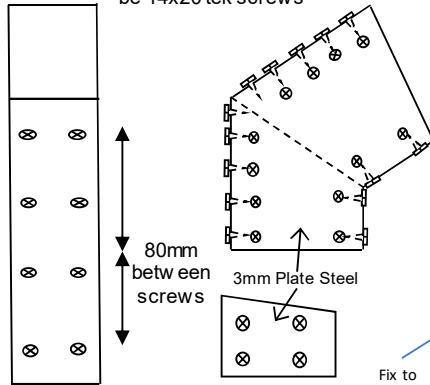


Notes

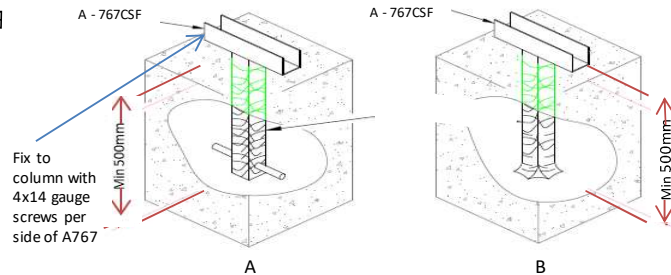
Roof sheets secured with 12x20 tek screws with neoprenes & Cyclone Washers. Haunch and apex connections secured with 20 x 14x20 tek screws per leg (40 per connection). Concrete to Apollo® Footing Code ANZFC01. Beams may be squarecut and flashed Apex connector is **A757** 3mm plate steel Knee connector is **A756** 3mm plate steel

Haunch Connection Details

All screws in haunch and apex connections are to be 14x20 tek screws

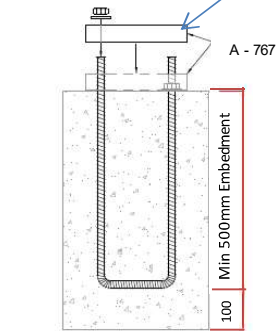


Post to Footings

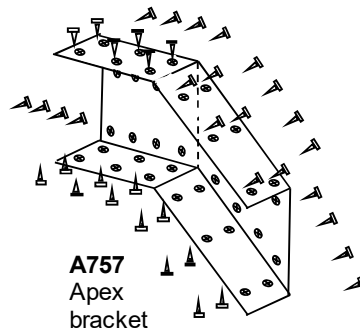


Option A N12: Bar through post 50mm from end

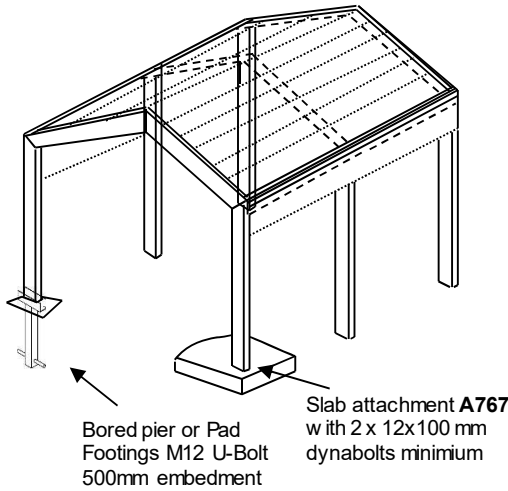
Option B: Deformend of post



Post to Footings U-Bolt

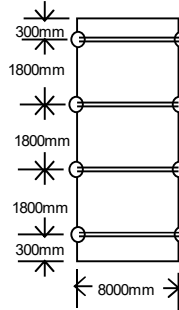


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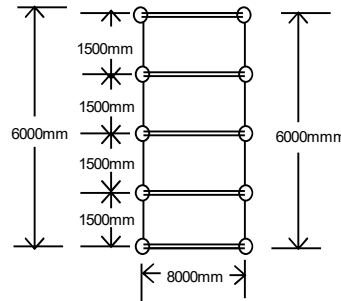


Portal & Footing Spaces

CBS7-4T c1



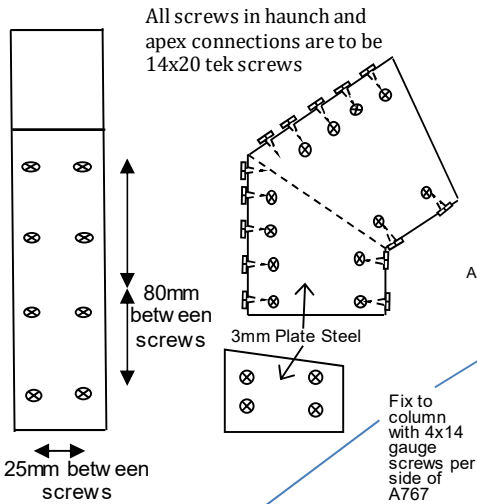
CBS7-5T c2



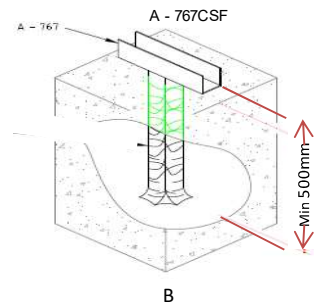
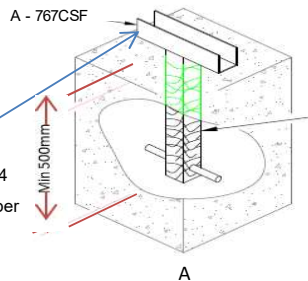
Notes

Roof sheets secured with 12x20 tek screws with neoprenes & Cyclone Washers. Haunch and apex connections secured with 20 x 14x20 tek screws per leg (40 per connection). Concrete to Apollo® Footing Code ANZFC01. Beams may be squarecut and flashed Apex connector is **A757** 3mm plate steel Knee connector is **A756** 3mm plate steel

Haunch Connection Details

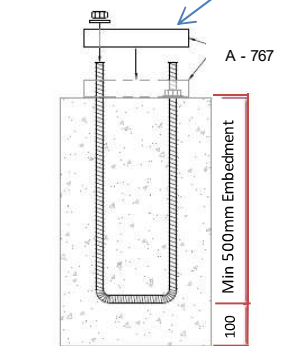


Post to Footings

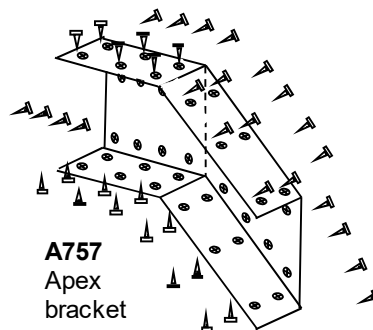


Option A N12: Bar through post 50mm from end

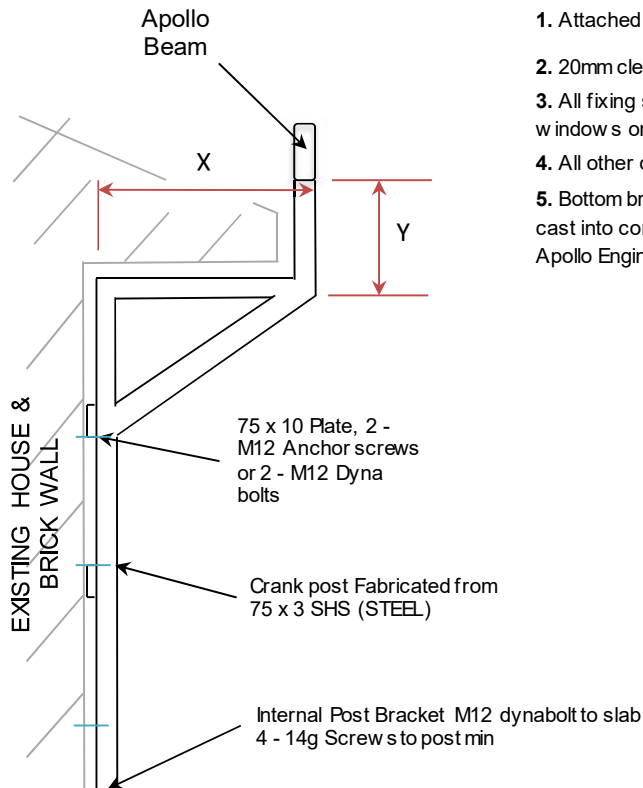
Option B: Deformend of post



Post to Footings U-Bolt

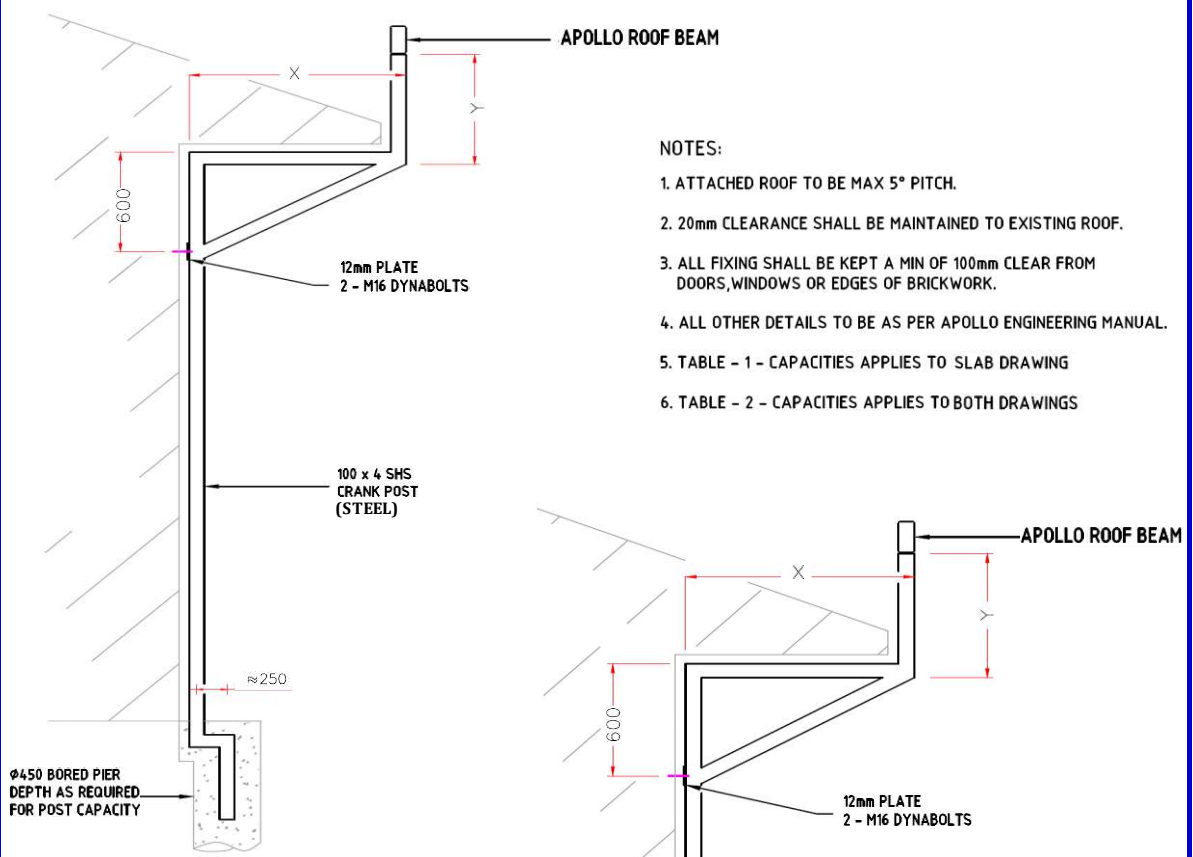


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**Notes:**

1. Attached roof to be max 5° pitch.
2. 20mm clearance shall be maintained to existing roof.
3. All fixing shall be kept a min of 100mm clear from doors, windows or edges of brickwork.
4. All other details to be as per Apollo Engineering manual.
5. Bottom bracket details can be replaced with bottom of post cast into concrete footings of appropriate size. Refer to Apollo Engineering Manual for pad footing size.

Crank Post Capacity (kN)						(X (m))
	0.6	0.8	1	1.2	1.4	
0.0	10.0	8.0	6.4	5.4	4.6	
0.2	10.0	7.7	6.2	5.2	4.5	
0.4	9.6	7.4	6.0	5.1	4.4	
(Y (m)) 0.6	9.1	7.1	5.8	4.9	4.3	
0.8	8.6	6.8	5.6	4.8	4.2	
1.0	8.2	6.6	5.4	4.7	4.1	
1.2	7.9	6.3	5.3	4.5	4.0	
1.4	7.5	6.1	5.1	4.4	3.9	



NOTES:

1. ATTACHED ROOF TO BE MAX 5° PITCH.
2. 20mm CLEARANCE SHALL BE MAINTAINED TO EXISTING ROOF.
3. ALL FIXING SHALL BE KEPT A MIN OF 100mm CLEAR FROM DOORS, WINDOWS OR EDGES OF BRICKWORK.
4. ALL OTHER DETAILS TO BE AS PER APOLLO ENGINEERING MANUAL.
5. TABLE - 1 - CAPACITIES APPLIES TO SLAB DRAWING
6. TABLE - 2 - CAPACITIES APPLIES TO BOTH DRAWINGS

TABLE 1

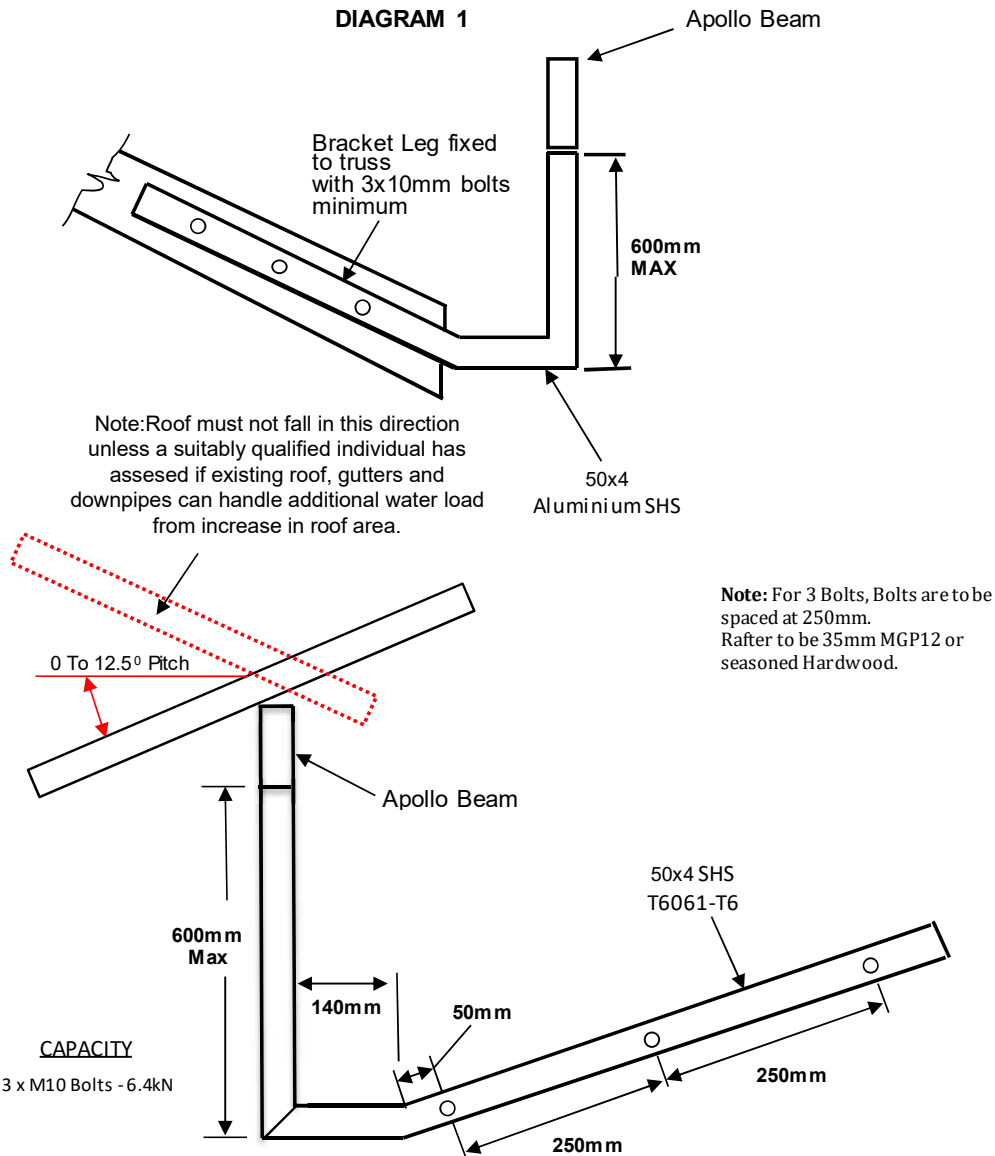
Slab Uplift Capacity (kN)					
(B m)	2	2.5	3	3.5	4
2	8.64	10.8	12.96	15.12	17.28
2.5	10.8	13.5	16.2	18.9	21.6
3	12.96	16.2	19.44	22.68	25.92
3.5	15.12	18.9	22.68	26.46	30.24
4	17.28	21.6	25.92	30.24	34.56

TABLE 2

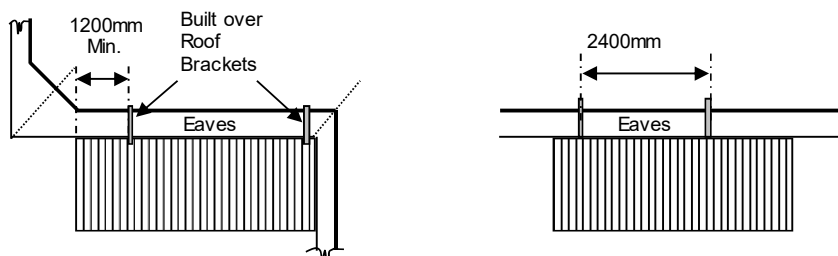
Crank Post Capacity (kN)					
(X m)	0.6	0.8	1	1.2	1.4
0	27	21.6	18	15.5	13.5
0.2	26.5	21.2	17.6	15.2	13.3
0.4	25.8	20.8	17.4	15	13.1
0.6	25.2	20.4	17.2	14.8	12.9
0.8	24.6	20	17	14.6	12.7
1	24.2	19.6	16.8	14.4	12.5
1.2	23.8	19.2	16.6	14.2	12.3
1.4	23.4	18.8	16.4	14	12.1

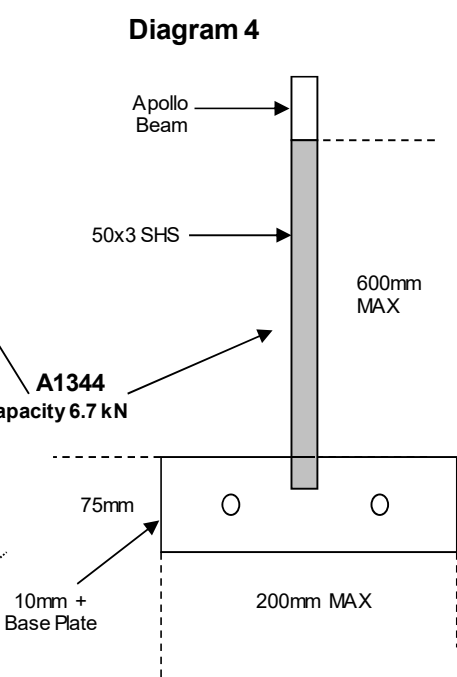
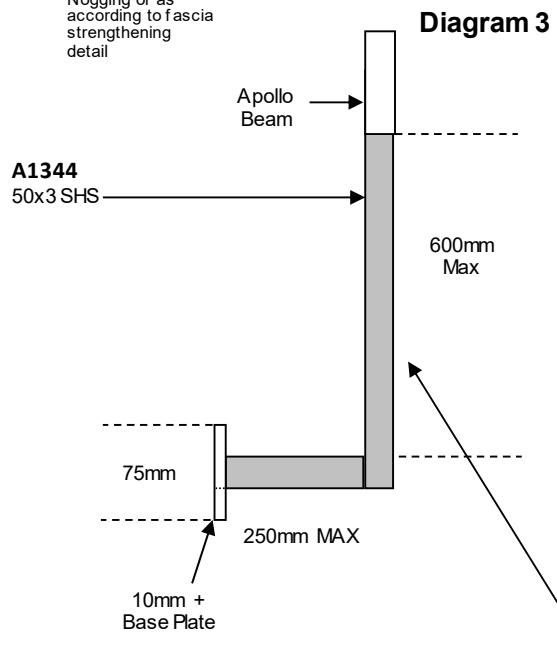
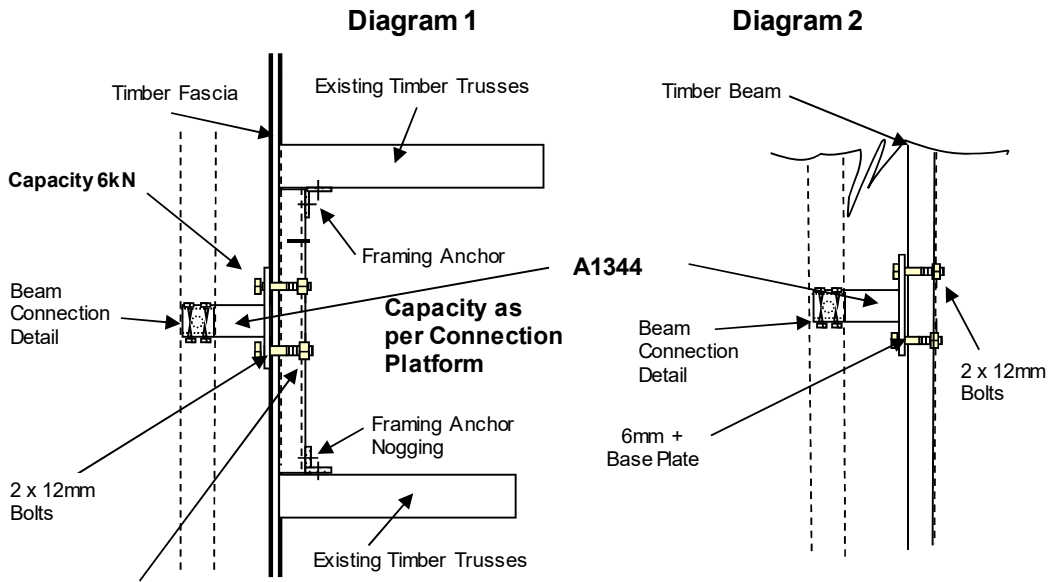
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DIAGRAM 1



PLAN





PLAN

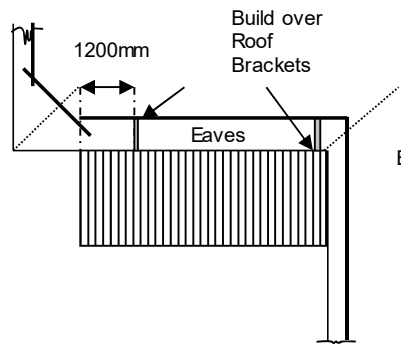


DIAGRAM 1

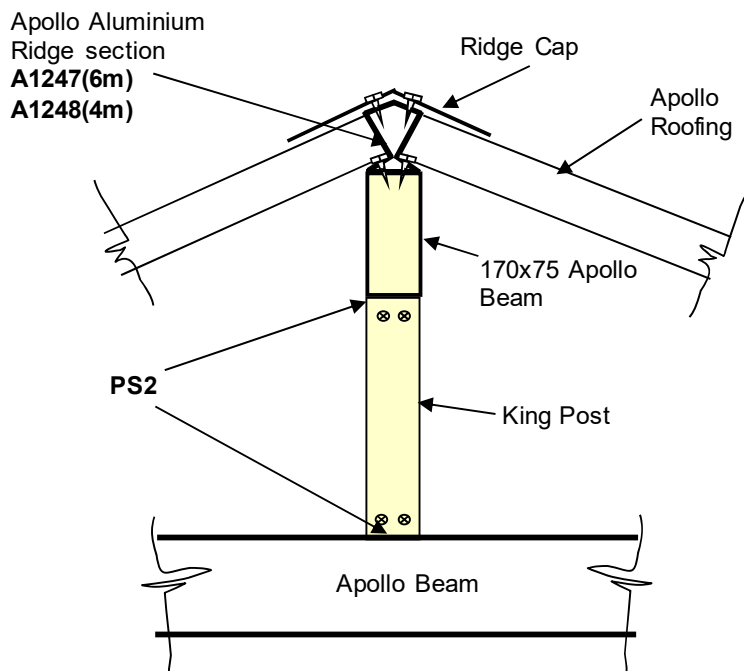


DIAGRAM 2

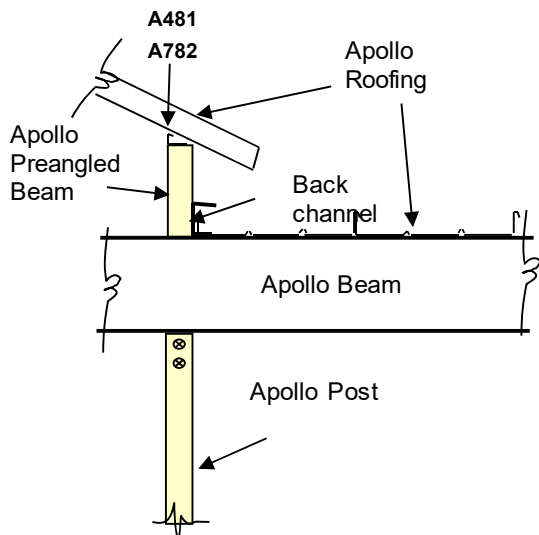


DIAGRAM 1

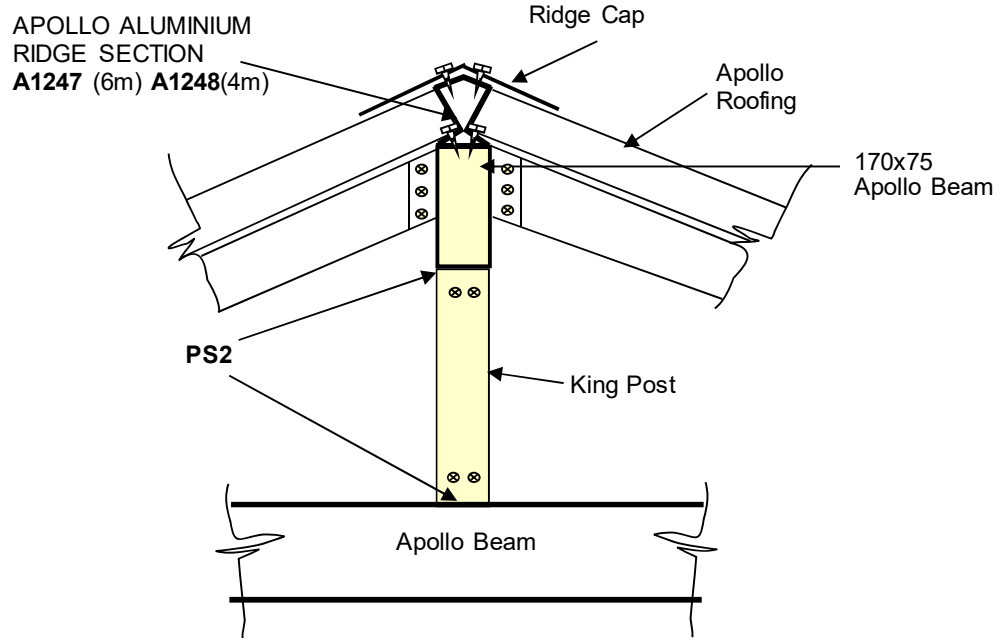


DIAGRAM 2

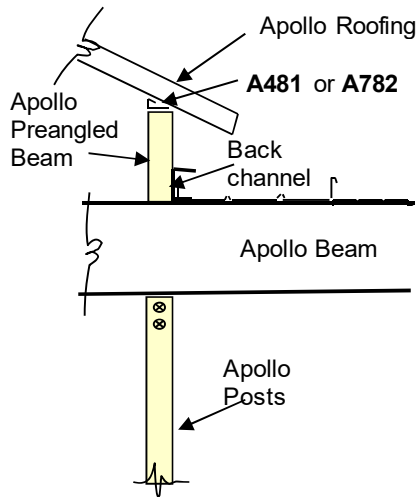
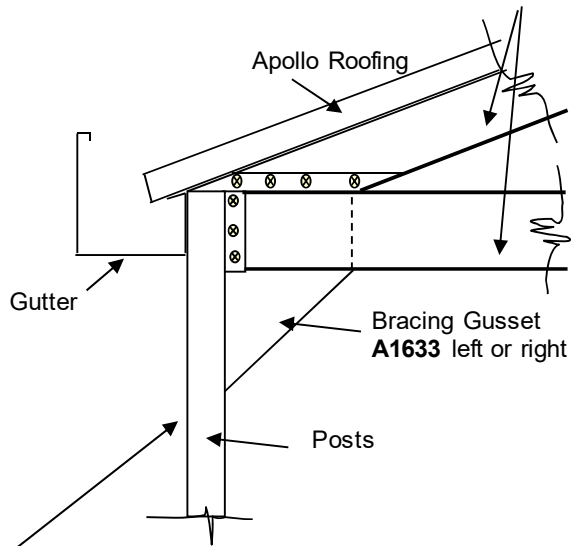


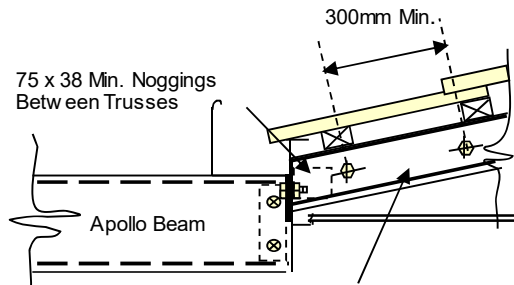
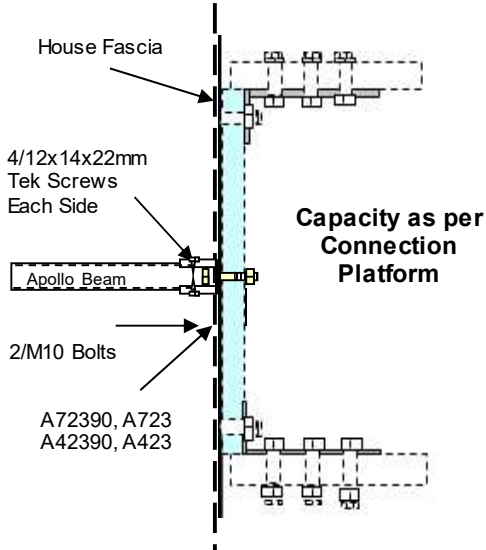
DIAGRAM 3



These connection details are applicable to all freestanding gables

PLAN: SUSPENDED GABLE BEAM DETAIL

ELEVATION: SUSPENDED GABLE BEAM DETAIL



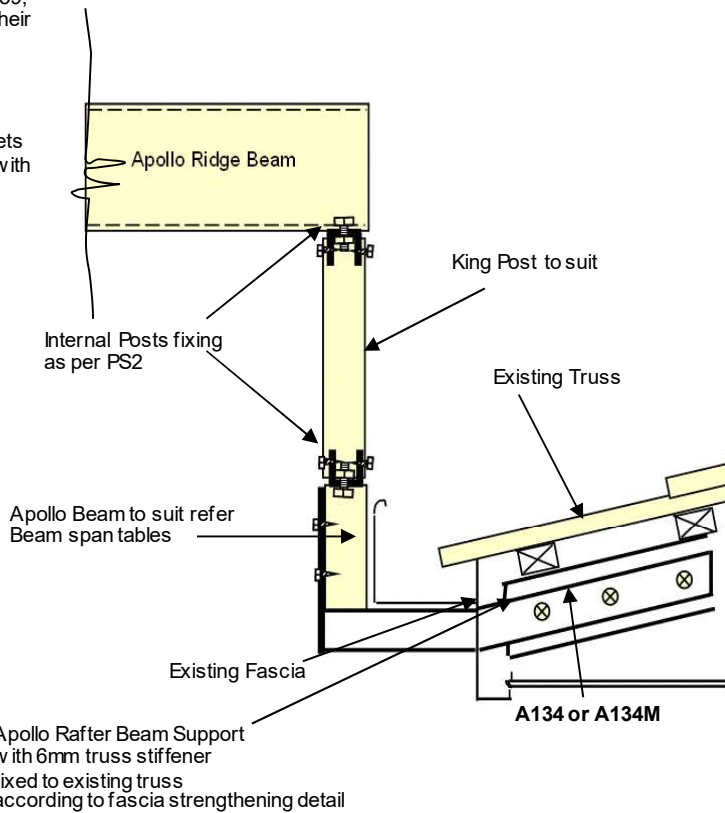
Stiffener 75x38, fixed to existing trusses with 2/M10 bolts @ 300mm centres or 3/14x50 type 17 timber teks hi/lo at 200mm centres or connection in accordance with fascia strengthening detail.

Rafter brackets not required within 1800mm of a Valley or Hip.
 Maximum overhang = 900mm.
 Tie downs in accordance with NOTE 4 in the General Note section.

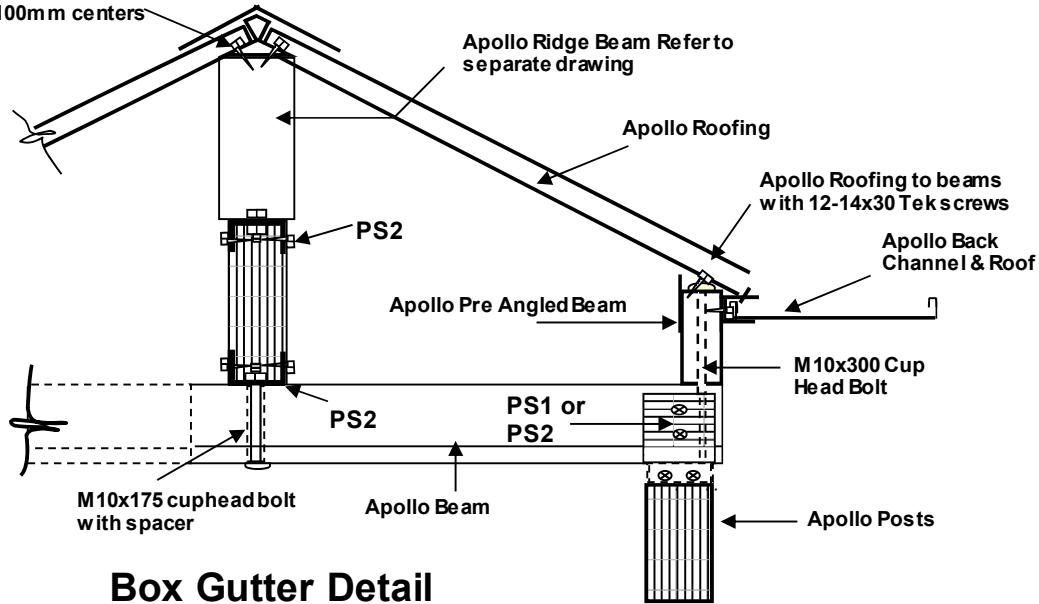
APOLLO BEAM SUPPORT BRACKET TOP DETAIL

Note: Beam attachment to fascia can be internal or external using A459, A759, A453, A7355 including their angle variations.

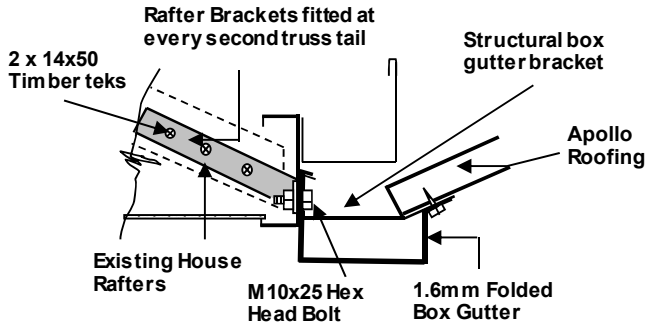
Note: Beam Support brackets fitted in accordance with roof load applied



Ridge Section to Beam with
12-14x30 Tek screws @
100mm centers

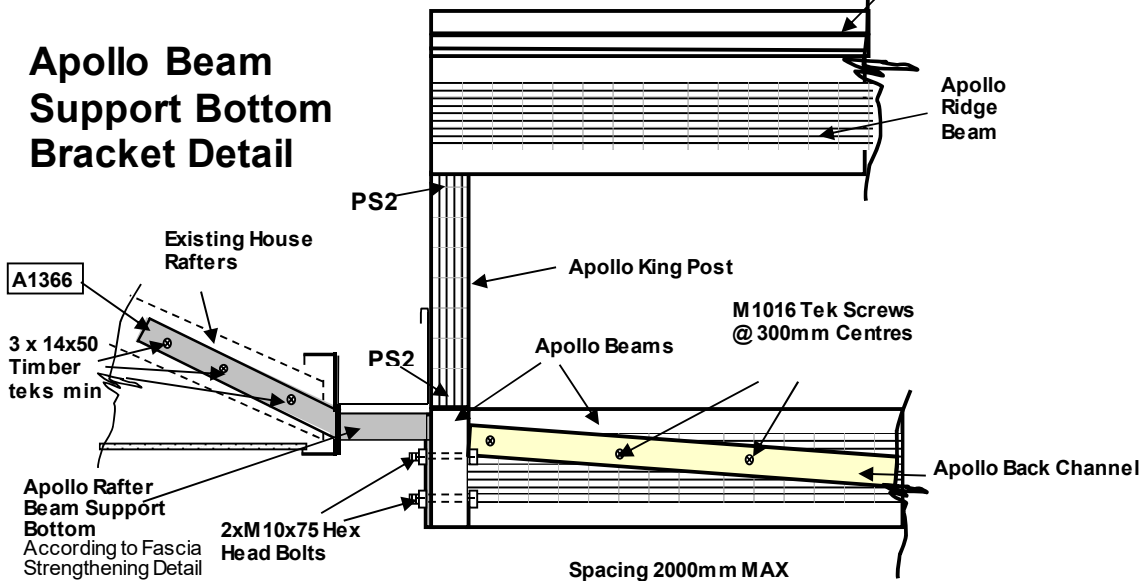


Box Gutter Detail

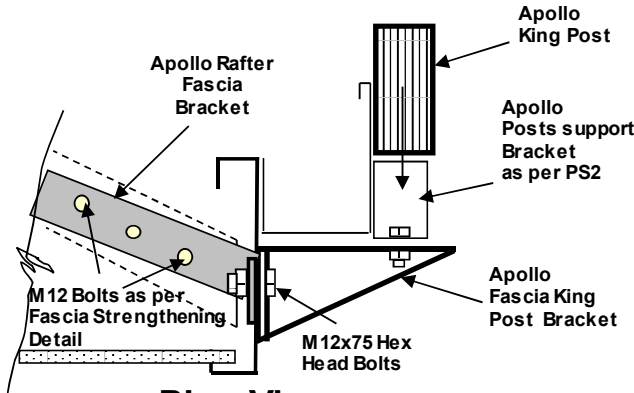


Note: Where attachment is made to rafter/truss overhangs, tie downs to be in accordance with NOTE 4 in the General Notes section.

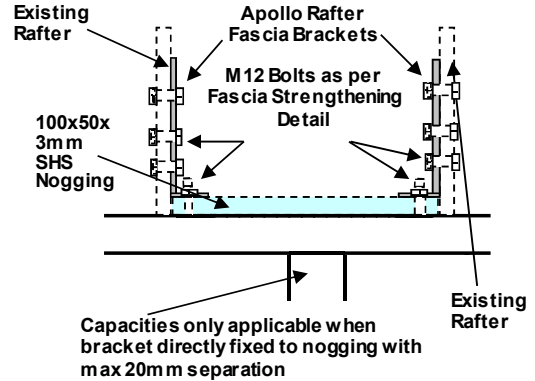
Apollo Beam Support Bottom Bracket Detail



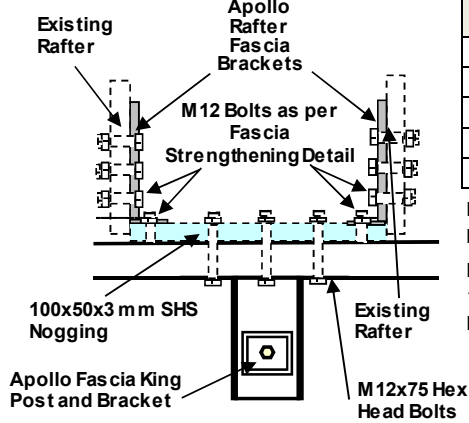
King Post Fixing Detail



Connection Platform



Plan View



Type	Bracketry	Central Region	Middle Third	Elsewhere
CP1	2 x A151	7.7 kN	6.8 kN	4.5 kN
CP2	2 x A151C	10.3 kN	9.0 kN	6.0 kN
CP3	2 x A1511	10.7 kN	9.4 kN	6.24 kN
CP4	2 x A1511C	12.5 kN	11.0 kN	7.3 kN
CP5	2 x A1512	12.7 kN	11.2 kN	7.4 kN

Note 1: Additional loading from any attached receiver channel to be included in bracket uplift load.

Note 2: Central regions for 600-900mm rafter spacing are +/- 50mm from centre:- 900-1200mm rafter spacing are +/- 100mm from centre.

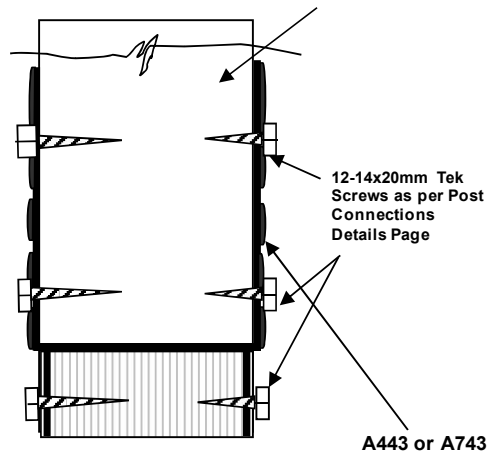
Note 3: Hanging brackets are to be fixed directly to nogging with no additional offset.

Type	Bracketry	Central Region	Middle Third	Elsewhere
CP1	2xA151	4.6 kN	4.0 kN	2.7 kN
CP2	2xA151C	7.5 kN	6.6 kN	4.4 kN
CP3	2xA1511	8.4 kN	7.4 kN	4.9 kN
CP4	2xA1511C	8.5 kN	8.5 kN	5.9 kN
CP5	2xA1512	8.5 kN	8.5 kN	6.3 kN

Note 1: Additional loading from any attached receiver channel to be included in bracket uplift load.

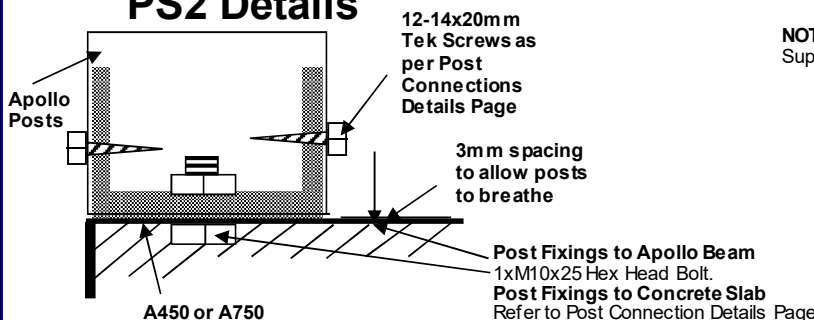
Note 2: Central regions for 600-900mm rafter spacing are +/- 50mm from centre:- 900-1200mm rafter spacing are +/- 100mm from centre.

PS1 Details

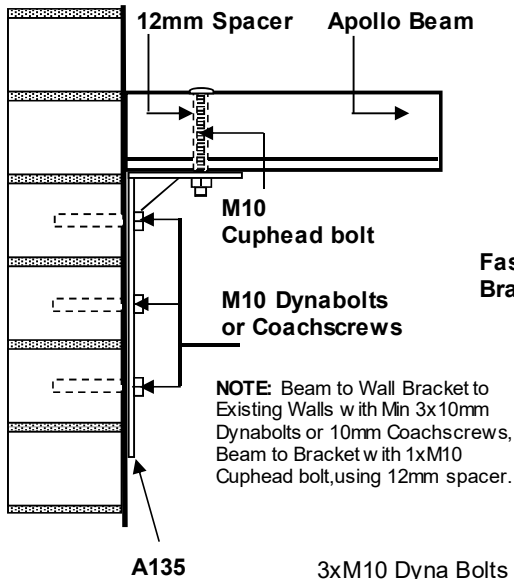


NOTE: External Aluminium Support Bracket

PS2 Details

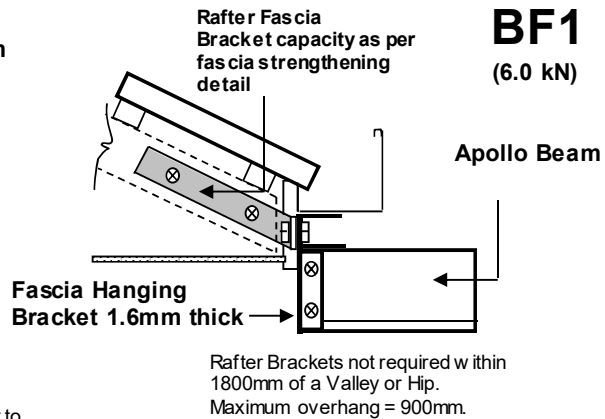


Beam to Wall Fixing

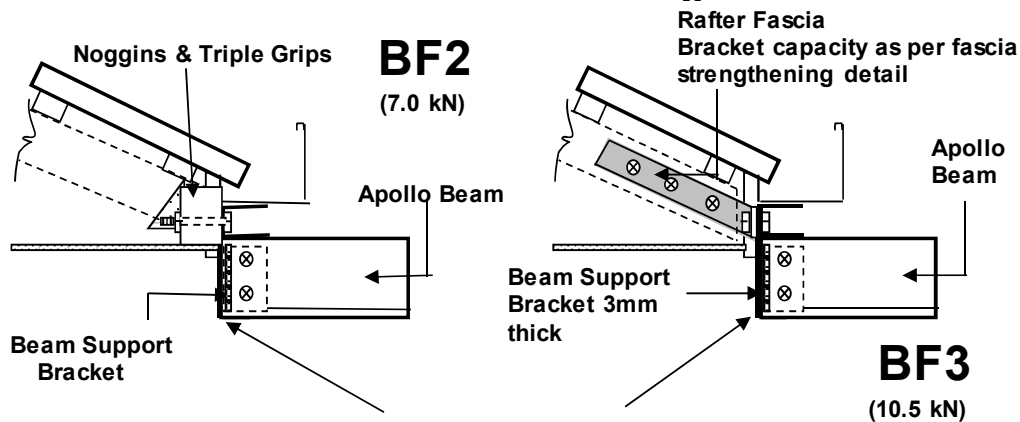


3xM10 Dyna Bolts to hollow Concrete Masonry - 9kN
 3xM10 Dyna Bolts to Clay Masonry - 20kN
 3xM10x75 Coach Screw to Unseasoned Hardwood - 6.8kN
 3 Mungo Bolts to Clay Masonry - 8kN

Beam to Fascia Fixing

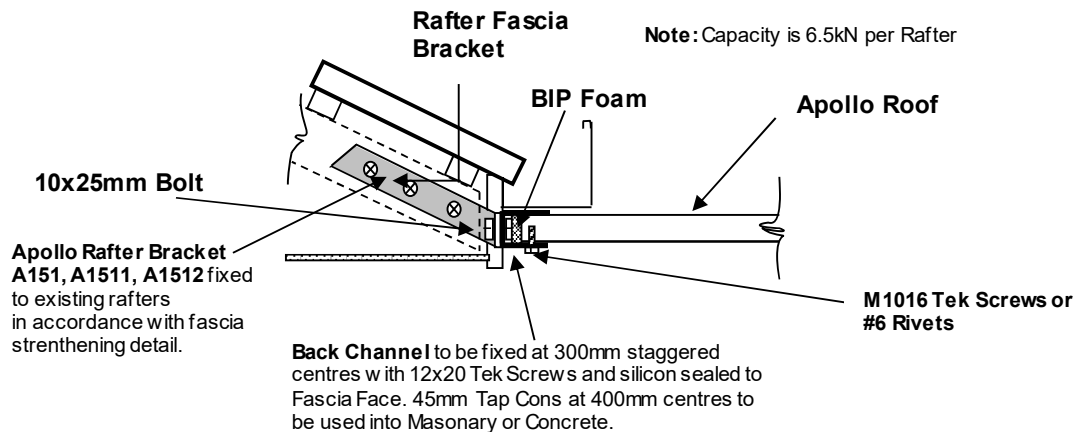
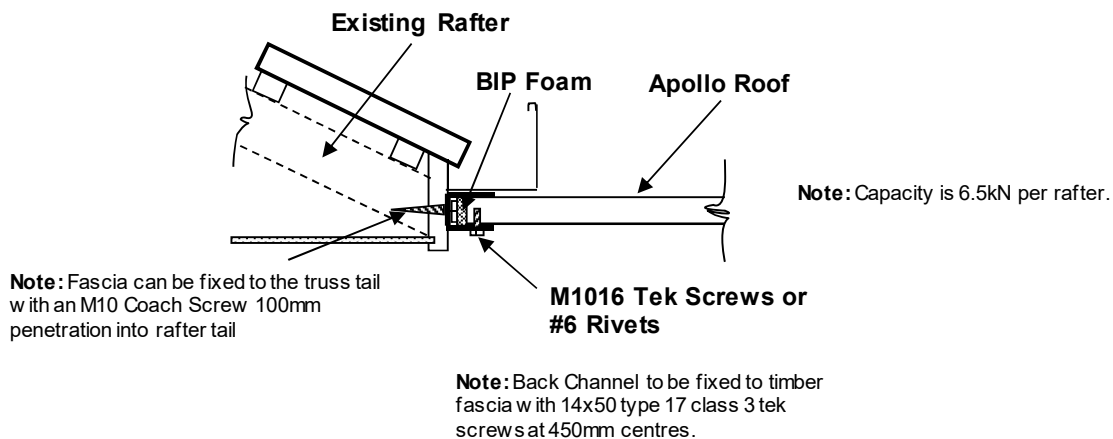


Beam to Fascia Fixing



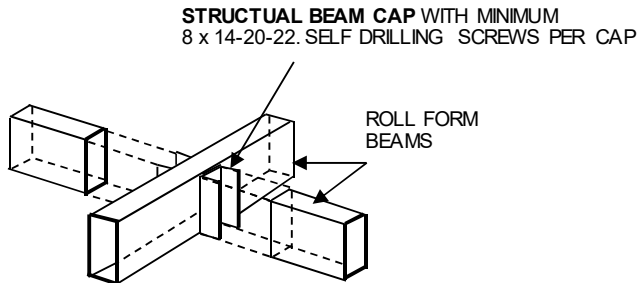
NOTE: Noggings 90x90 betw een rafters then B/Channel bolted through fascia & noggings w ith M10 bolts @ 450 Centres. Noggings to be triple gripped to existing rafters.

NOTE: Beam Support Brackets A42390, A72390, A4355, A7355, A453, A753 or their angle variations to Existing Fascia in accordance with fascia strengthening detail.

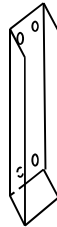
STEEL FASCIA FIXING

TIMBER FASCIA FIXING

Note:

- Verification of Fascia and Fascia clip fixing to be in accordance with current Australian Standards required.
- Rafter Brackets not required within 1800mm of a Valley or Hip.
- Maximum overhang = 900mm.
- Ties downs - Each rafter/truss overhang is to have one extra framing anchor 4 nails each end fixing to top plate for a capacity of 3.5kN per connection, 2 anchors to be used for a capacity of 7kN.

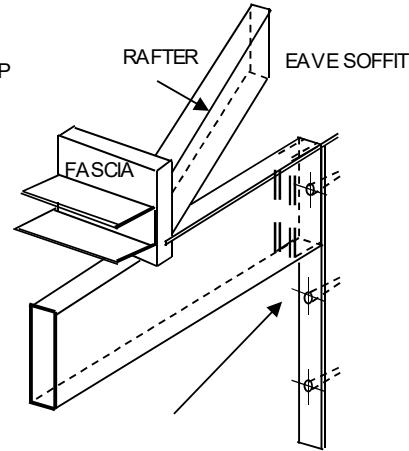
DETAIL "1"
BEAM TO BEAM CONNECTION



Connection - 140x50 beam -
Part Number A42390
Capacity is 7.5kN.
Connection - 170 x 75 Beam -
Part Number A72390
Capacity is 13.9kN.
This capacity applies to angle
variations of these brackets

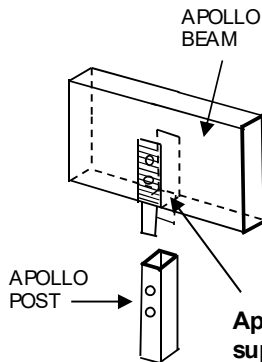


DETAIL "2"
WALL BRACKET : BEAM TO WALL



A135, A4355, A7355 and their angle
variations. STEEL BRACKET FIXED TO
WALL WITH M10 "Mungo Bolts"
Minimum

DETAIL "4"
POST TO BEAM BRACKET

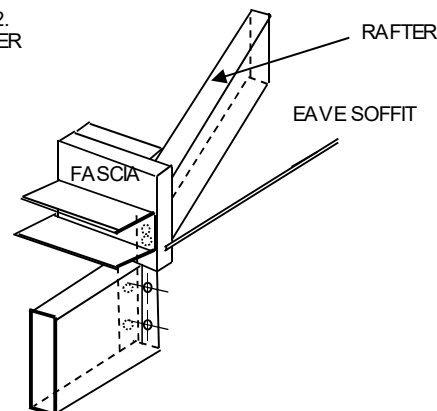


A443 OR A743 STRUCTURAL
POST SUPPORT BRACKET
WITH MINIMUM 8 x 14-20-22.
SELF DRILLING SCREWS PER
POST CONNECTION

Applicable double beam
support brackets with
double the fixings required
for single attachments may
be substituted.

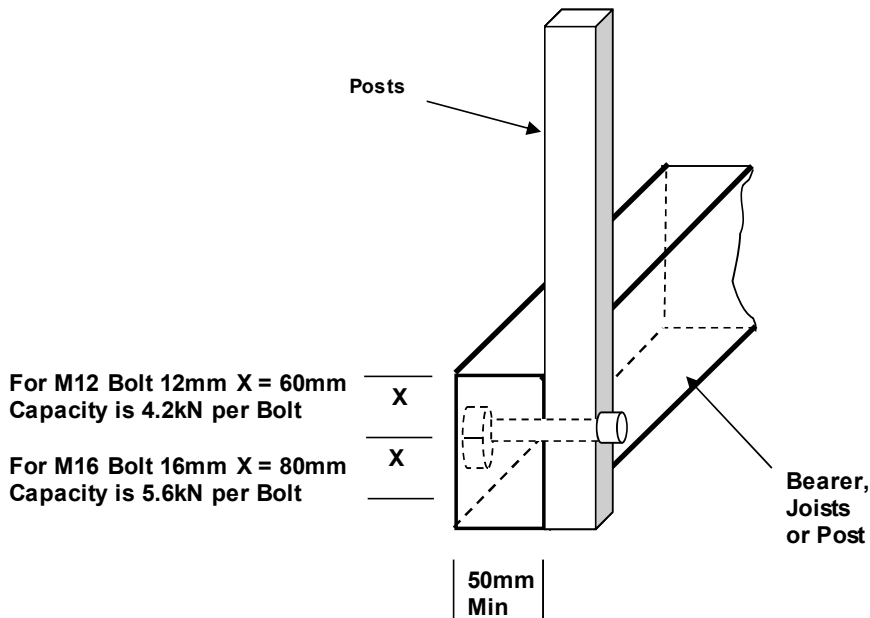
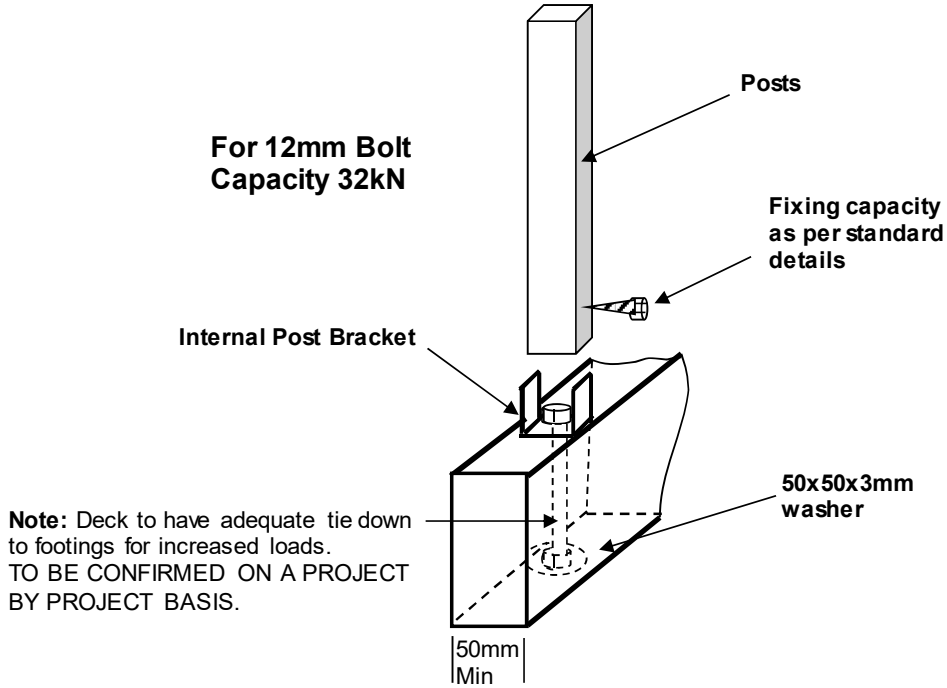
DETAIL "3"
BEAM TO FASCIA / RAFTER / STEEL

**TIMBER BRIDGING BETWEEN
RAFTERS WHERE NECESSARY** or as
according to Fascia strengthening detail



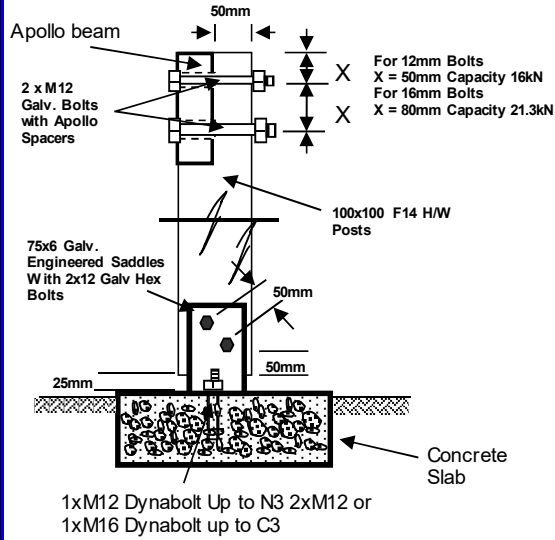
NOTE: Back Channel to be fixed at 300mm staggered centres with 12x20 Tek Screws and silicon sealed to Fascia Face.
Verification of Fascia and Fascia clip fixing to be in accordance with current S.A.A. Codes required.
Rafter Brackets not required within 1800mm of a Valley or Hip.
Maximum overhang = 900mm. Ties downs - Each rafter/truss overhang where connection is made is to have one extra framing anchor with 4 nails each leg to each rafter/truss to top-plate for an additional uplift capacity of 3.5kN per truss, increased fixing will be required if this capacity is exceeded.

Posts Connections to Decks



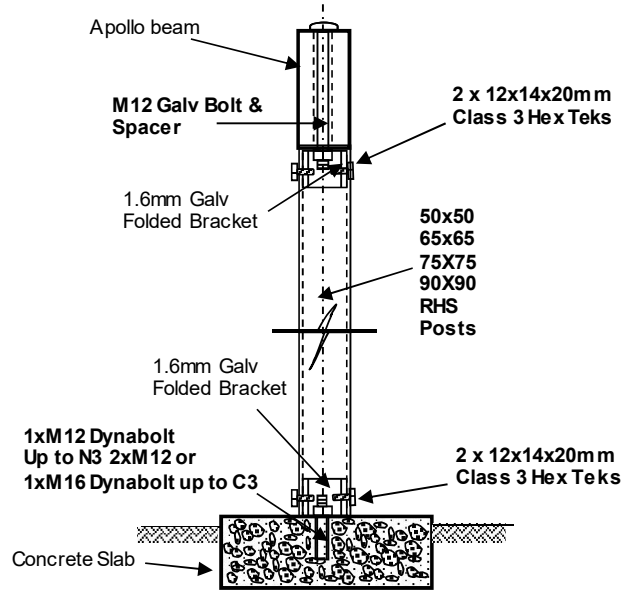
HARDWOOD POSTS

CONNECTION DETAILS TO SLAB:

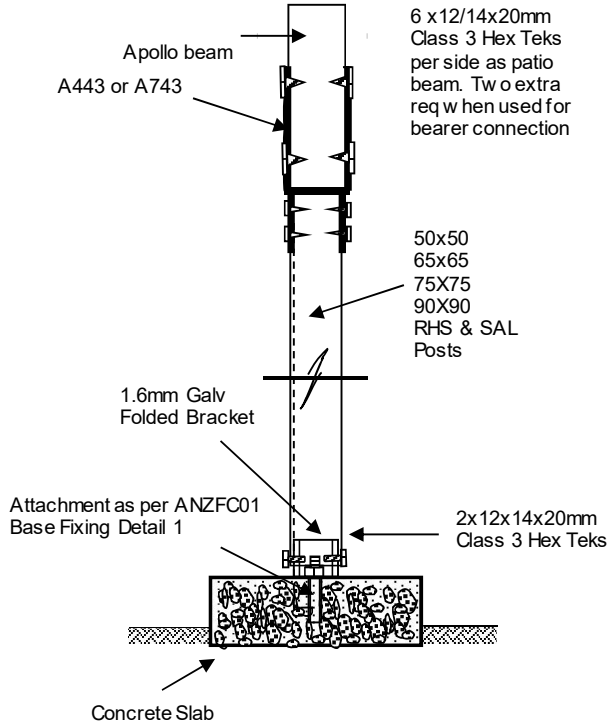
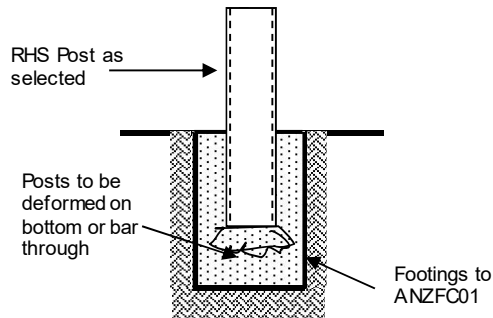
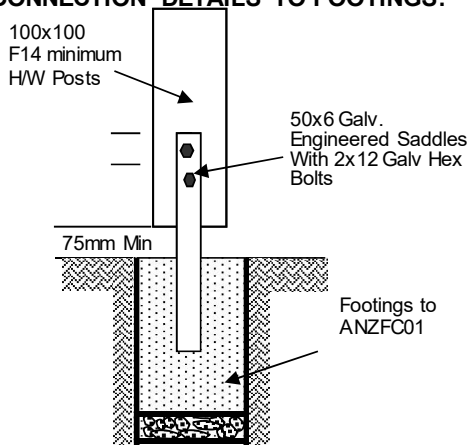


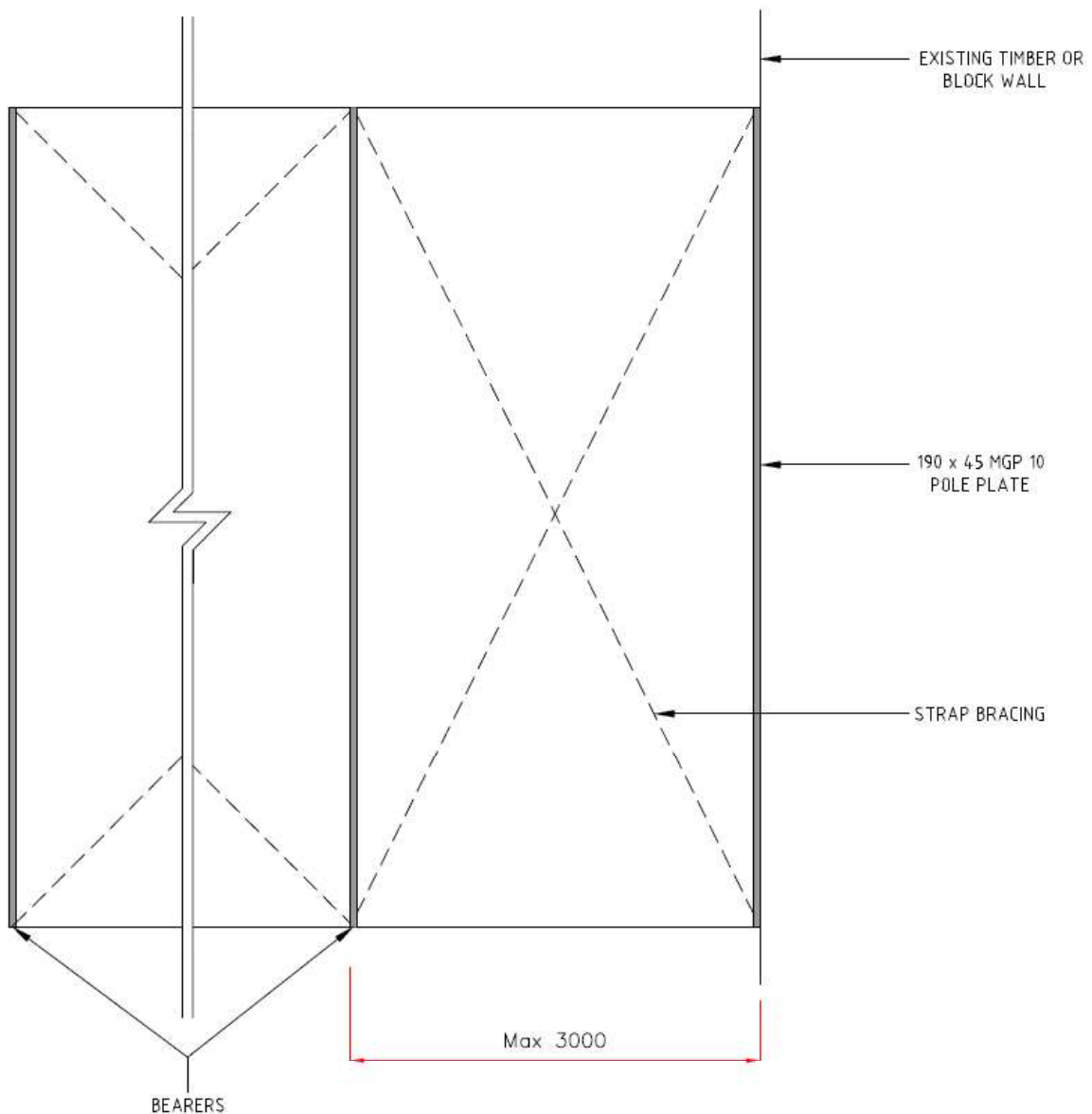
R.H.S. POSTS

CONNECTION DETAILS TO SLAB:



CONNECTION DETAILS TO FOOTINGS:



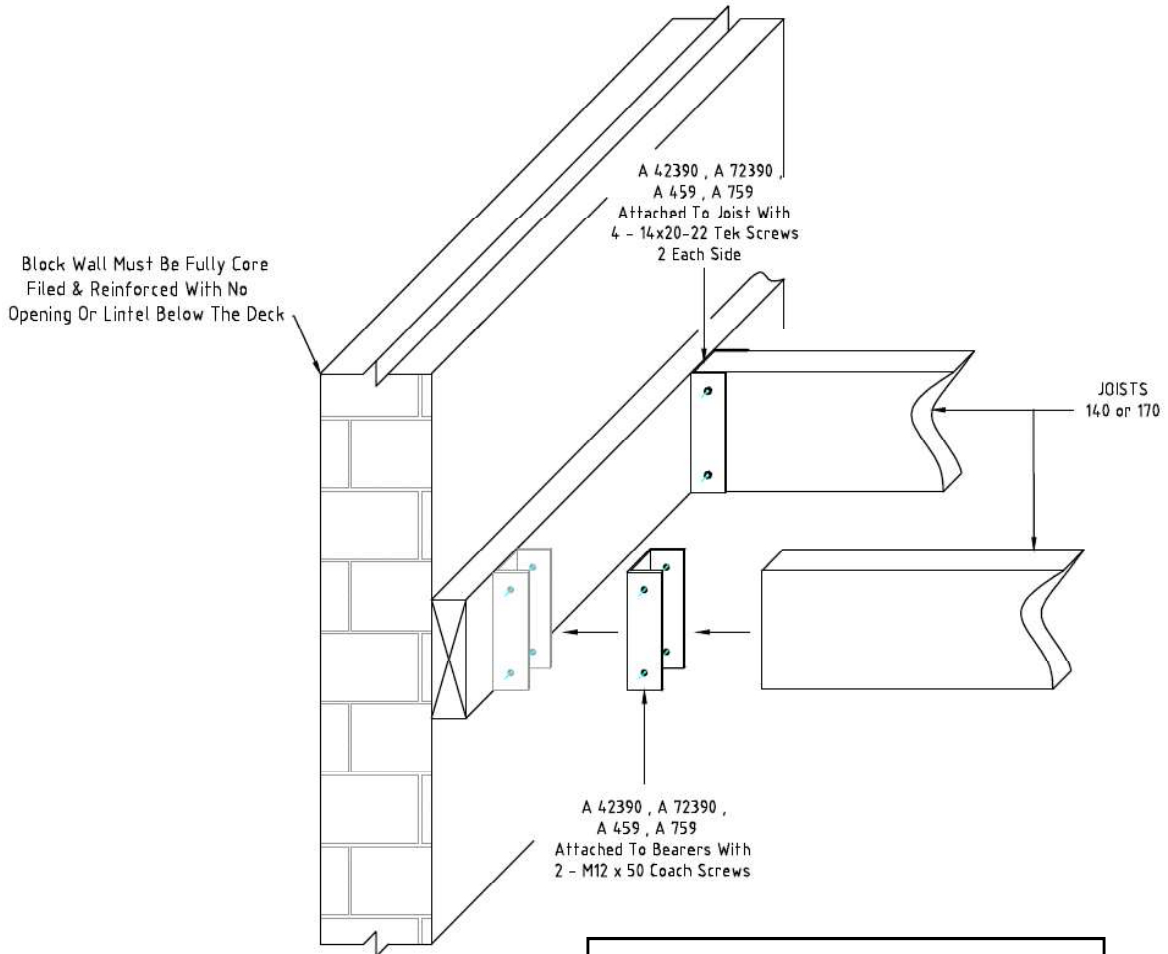


Minimum Requirements for Compliance with
 Clause H1D11 of NCC 2022 Volume 2

If the Existing Structure & the Proposed Deck Comply
 with the Requirements shown on this Drawing,
 No Further Assessment is required for Compliance with
 Clause H1D11 of NCC 2022 Volume 2

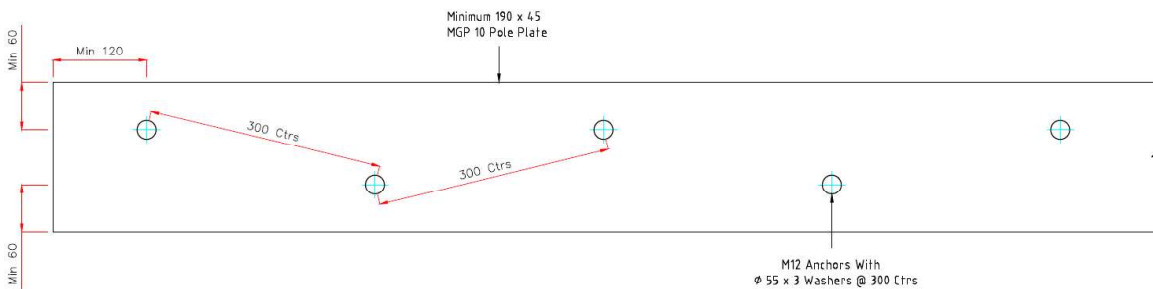
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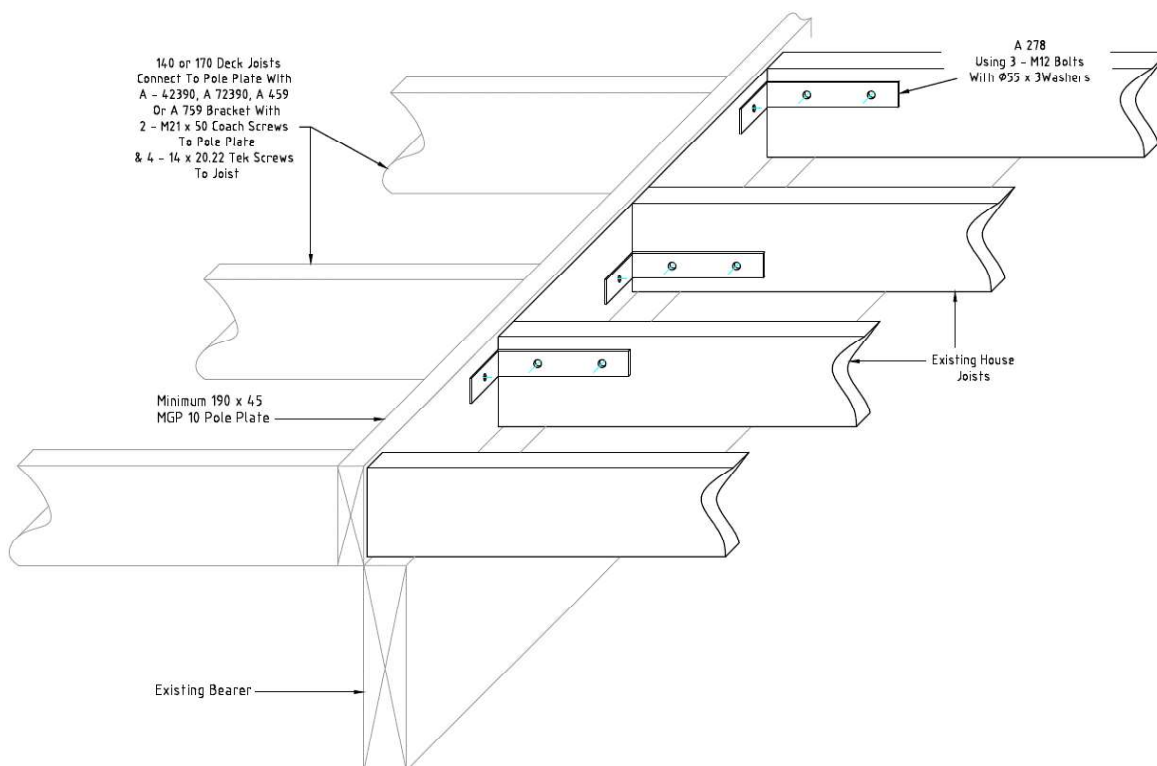


Minimum Requirements for Compliance with Clause H1D11 of NCC 2022 Volume 2

If the Existing Structure & the Proposed Deck Comply with the Requirements shown on this Drawing, No Further Assessment is required for Compliance with Clause H1D11 of NCC 2022 Volume 2

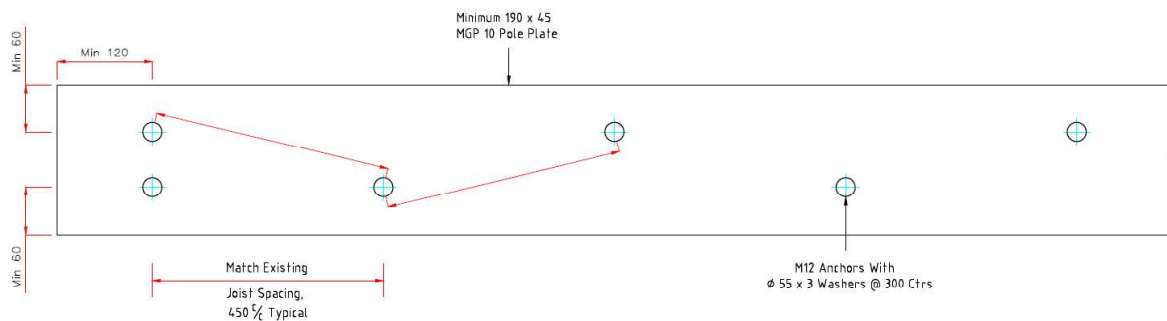


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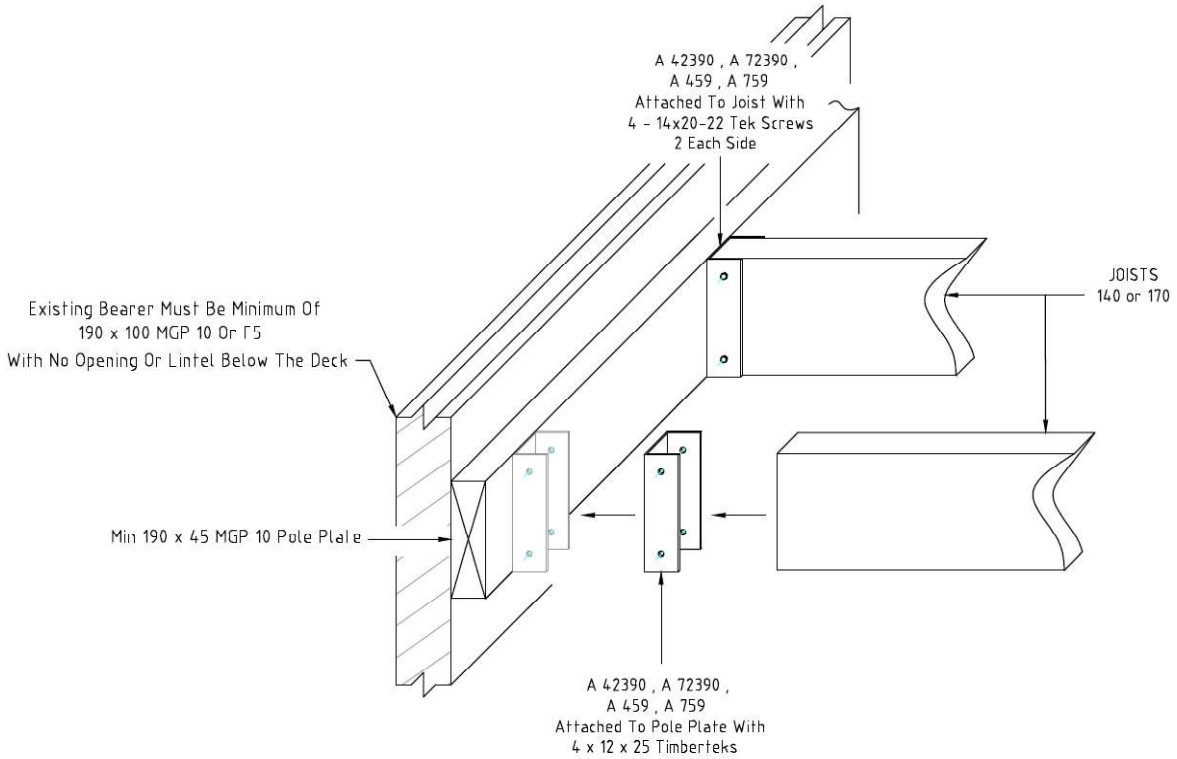


The Structural Arrangement shown on This drawing Does NOT Comply with All the Requirements of: Clause H1D11 of NCC 2022 Volume 2

The Adequacy of the Existing structure to Support the Loads from the proposed Deck SHOULD be Assessed on Site. Seek the assistance from a Structural Engineer if required.

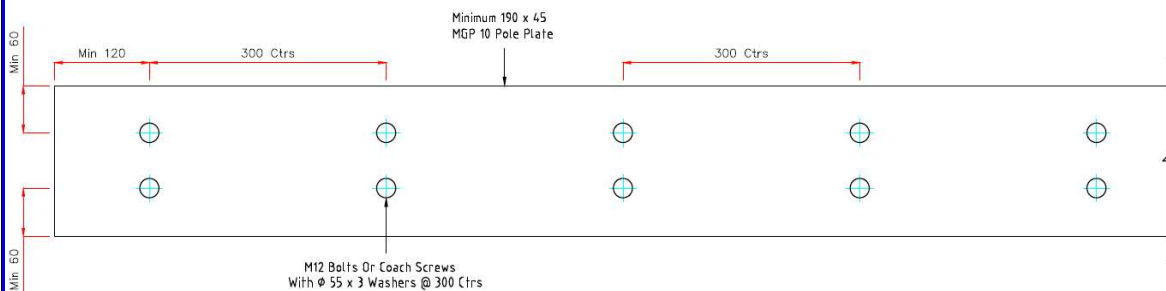


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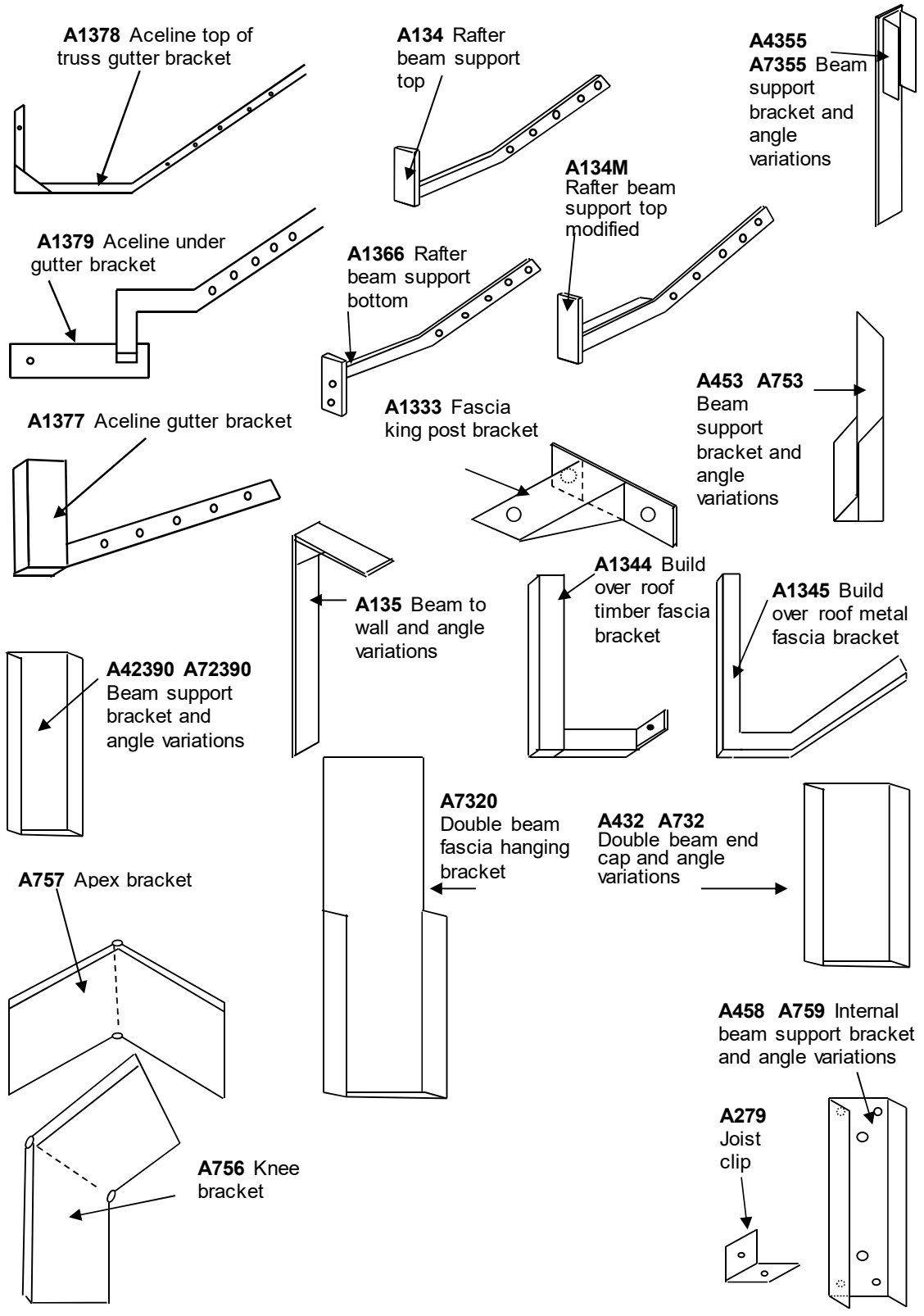


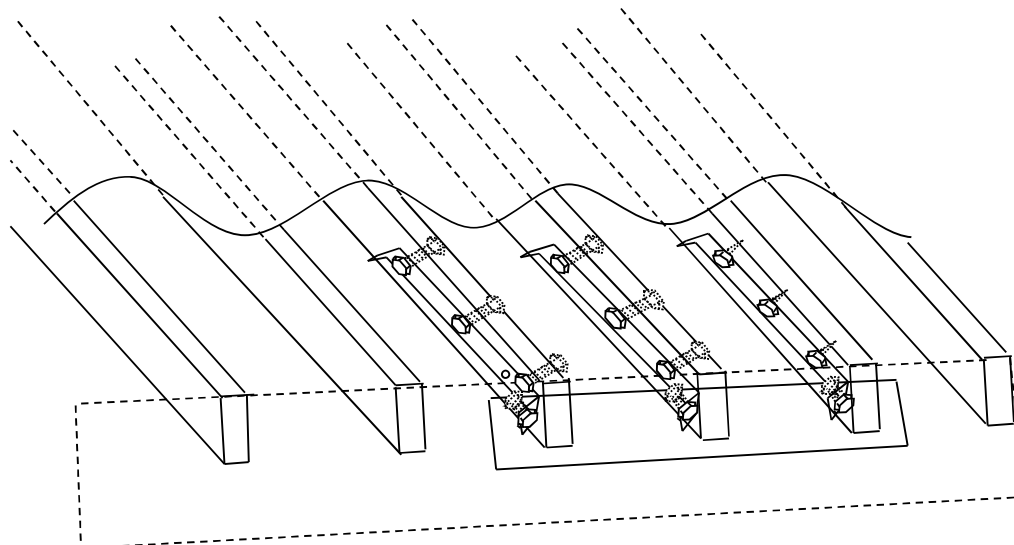
**Minimum Requirements for Compliance
With Clause H1D11 of NCC 2022 Volume2**

If the Existing structure Complies with the requirements shown on this drawing,
No further Assessment is required for Compliance with:
Clause H1D11 of NCC Volume 2



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Note 1: Capacities stated for multiple bracket combinations are applicable only when rafter fascia brackets are connected to adjacent truss tails using metal nogging Apollo part No : A152 - 600mm, A1521-1200mm or A1522-1800mm.

Note 2: Capacity of existing rafter/truss tails are to be assessed by builder and strengthened if required.

1 Bracket (Capacity-kN)			
Fixing Type			
Bracket	M12Bolts	M10Bolts	14gScrews
A151	4.5kN	3.8kN	2.4kN
A151C	6.0kN	5.0kN	3.3kN
A1511	6.24kN	5.2kN	3.4kN
A1511C	7.3kN	6.1kN	4.0kN
A1512	7.4kN	6.2kN	4.1kN

2 Bracket (Capacity-kN)			
Fixing Type			
Bracket	M12Bolts	M10Bolts	14gScrews
A151	9.0kN	7.6kN	4.8kN
A151C	12kN	10kN	6.6kN
A1511	12.5kN	10.4kN	6.8kN
A1511C	14.6kN	12.2kN	8.0kN
A1512	14.8kN	12.2kN	8.2kN

3 Bracket (Capacity-kN)			
Fixing Type			
Bracket	M12Bolts	M10Bolts	14gScrews
A151	13.5kN	11.4kN	7.2kN
A151C	18.0kN	15.0kN	9.9kN
A1511	18.7kN	15.6kN	10.2kN
A1511C	21.9kN	18.3kN	12.0kN
A1512	22.2kN	18.6kN	12.3kN

4 Bracket (Capacity-kN)			
Fixing Type			
Bracket	M12Bolts	M10Bolts	14gScrews
A151	18kN	15.2kN	9.6kN
A151C	24kN	20.0kN	12.2kN
A1511	25kN	20.8kN	13.6kN
A1511C	29.2kN	24.4kN	16.0kN
A1512	29.6kN	24.8kN	16.4kN

Bracket	Length of Bracket	No. of Fixings
A151	320mm	3 Fixings
A151C	550mm	4 Fixings
A1511	750mm	4 Fixings
A1511C	850mm	5 Fixings
A1512	1200mm	5 Fixings